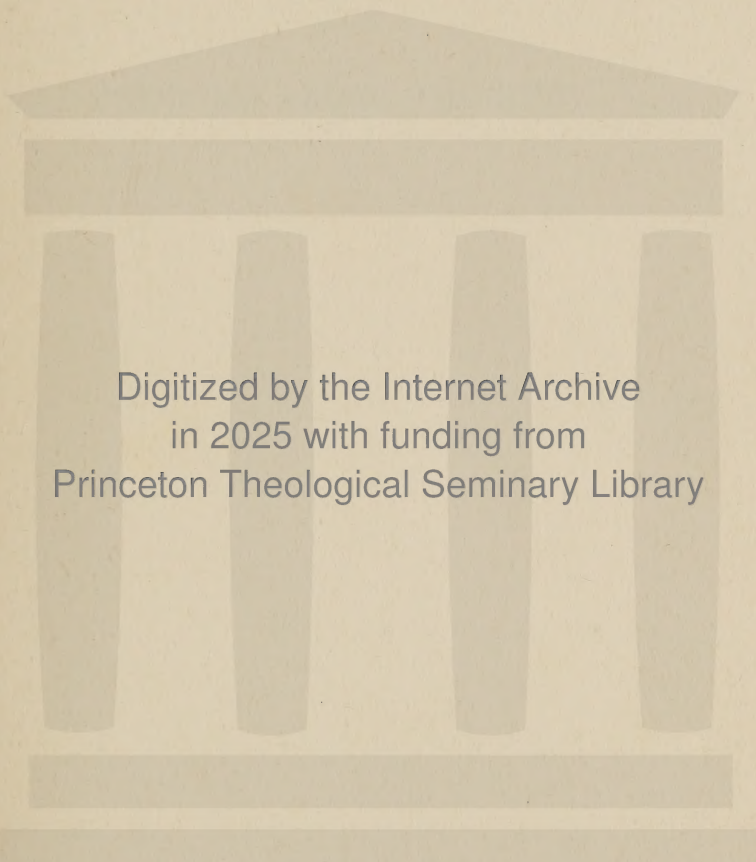


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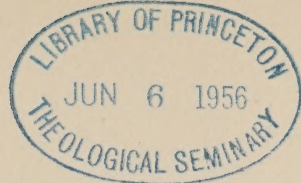




THINKING ABOUT THINKING







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# THINKING ABOUT THINKING

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BY MERL RUSKIN WOLFARD



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# THINKING ABOUT THINKING





## CHAPTER I

### THINKING ABOUT A SCIENTIFIC-THEOLOGY

It is with some feeling of trepidation that I venture to think out loud about Scientific-Theology. In a certain sense these two words are antithetical, but I intend to use them as one molecule, so to speak; just as sodium and chlorine *burn each other up* when they are brought together, but their union produces a life-giving salt.

In the 1940 edition of a College Standard Dictionary the first definition of *science* is "knowledge as of facts, laws, and proximate causes, gained and verified by exact observation and correct thinking; also the sum of universal knowledge." A little thinking about this definition reveals that science is a medley of human concepts relating to the universe. Science goes to the universe for its information, but science is not the universe. Thinking about a total concept of science raises many questions. How can one know when an observation is sufficiently inclusive and exclusive at the same time to be acceptable as basic evidence in science? What is correct thinking? What is the particular meaning of the word "universal" in the phrase "the sum of universal knowledge?" Or, more comprehensively, what is the overall theory of science? What is the psychic significance of science? Can scientific thinking evaluate mental activities?

Permit me to introduce a few personal reminiscences

to give a little historical perspective to this discussion. I became of age at the turn of the century; at least I was twenty-one years old in 1900. Prior to that, while I was living on a ranch in Wyoming, I received a circular from a correspondence school before I went to college. An article in that circular pointed out how simple some things are when approached scientifically. I quote entirely from memory, "Walking, for example, is a simple falling of the body forward at each step." Even in my youth I had a little mechanical ingenuity and I said to myself, "It can't be as simple as that, there must be some elevating mechanism which continually raises the body into a position so that it can fall with each step." Anybody who has tried walking up-hill knows that considerable power is needed to elevate the body so that it can continually fall at each step.

Somewhere along the historical process of my education I learned that a certain individual watched an apple fall, and this particular individual had curiosity enough to ask, "Why did the apple fall?" By applying his mind to the solution of this *why*, after a few simple experiments, this individual deduced a mathematical formula which approximately expressed the law of gravitation; and the whole calculating business of science was off to a flying start. But, what I want to know is *how* the apple got up into the tree so that it had a chance to fall. The solution of this "how" is not so simple, however, and so far as I am aware, no organized scientific inquiry has been directed toward the integration of this "how." The apple being in the tree at a distance above the earth is an antecedent fact which is easily ascertainable by direct observation.

When I was doing my graduate work in college, I chose to specialize in Heat Engines, and thermodynamics was



a must for me. I learned something about the Second Law of Thermodynamics, which was all right insofar as it related to the utilization of heat for propelling a piston in the cylinder of an engine; but, when the slight of mind scientists try to make this Second Law of Thermodynamics a criterion for limiting the ultimate possibilities of the Universe, my mind protests. The Second Law proponents seem to proclaim that the availability of heat energy in the Universe is decreasing because when work is done, as by an expanding gas, the temperature drops. But the availability of heat in a lump of coal is greatly increased when the coal is burned, as under a boiler.

Another scientific determination which has been given a high universal rating is the Mechanical Equivalent of Heat. But, is there any mechanical equivalent of fire? One can rub two sticks of wood together to start a fire. If he then uses the fire only to light a cigarette, the expenditure of mechanical effort will be very considerable as compared with the result accomplished. But if the smoker then tosses his lighted cigarette into a pile of dry leaves which starts a forest fire, the mechanical effort required to start the fire may be very inconsiderable as compared with the heat produced.

Moreover, during the period of my college education the scientists declared: "The total mass of the universe remains constant; the total energy of the universe remains constant; the smallest possible division of matter is the atom; and most emphatically no element could ever be transmuted or otherwise changed into any other *element*." All of these concepts have by now been repudiated by science. What then becomes of *correct* thinking? Does correct thinking sometimes lead to wrong conclusions? Or, haven't the scientists yet begun to think correctly?

## *Slight of Mind Thinking*

All this tends to throw into sharp outline the shyness of the traditional scientist when he approaches the mind. He is willing to discuss and write on such topics as: "Why we Behave Like Human Beings," or even, "The Wisdom of the Body;" but is not willing to consider or write on, "How Can We Improve Minds?" nor even on, "The Wisdom of the Mind." This indifference toward mental values, or "slight of mind" by a scientist, resembles in some respects the "sleight of hand" by a magician; except that this slight of mind by a scientist deceives himself as well as his audience. Plato once said, "Everything that deceives may be said to enchant." Is it possible that the skeptically minded have reached that stage in human evolution where they can enjoy the thrill of revealing some of the more accessible mysteries of the universe, while yet clinging to the enchantment of being deceived by the absence of the less accessible mysteries of the universe?

Something of this incongruity in the approach to the mind has clothed many scientific conclusions with doubtful validity in any scheme of universal values. The time consumed in explaining and expounding the significance of the Second Law of Thermodynamics, and the Fall of the Apple, tend to leave in the mind an over-weening sense of *degradation* as a paramount law of the universe. Of course, sliding down hill or falling from a height can only occur after something has been *raised to a height*. In other words, degradation, or drop in potential can only occur where *somehow* potential was created.

The idea of creation has become a stumbling-block in many skeptical minds of today. They started out on the assumption that the world was not created,—it always was and always will be, world without end. I have

not heard any recent amendments on this idea of creation in general or *in toto*, but only the other day I heard one of the proponents of universal degradation assure us that the sun is still *running down* and will be dark and cold some day, perhaps in a billion years or so.

It may be only a coincidence, but it is a fact of profound concern, in the economic world of today, that many organizations, and even individuals, are anxious to help spend whatever has been produced irrespective of the part which each may have had in the production of that which is being spent.

### *Good and Evil*

Another type of incongruity which has persisted in the scientific tradition is the attitude toward the story of "the tree of the knowledge of good and evil" which stood in the very midst of the Garden of Eden. These scientists are inclined to stop at the word "knowledge" and ask, why go further? Knowledge is a reasonably definite concept; why load it down with two such indefinite concepts as "good" and "evil"?

This question of good and evil has not been wholly ignored by scientists; it could not be in a world of conscious human beings; but the general insistence that science is *amoral*, that is, science is neutral insofar as moral values are concerned, and therefore, the scientists are not directly interested in or responsible for the moral consequences of their pronouncements, has undoubtedly led to much of the mental confusion in the world today. The multitudinous complexities of the universe, which science has only touched at some of its margins, makes this claim for immunity from personal responsibility largely untenable at the present time.

In the early days the free lance scientists acted as if



they thought it was only a question of discovering a few laws relating to the arrangements of the atoms in the molecule, and then by discovering a few more laws relating to the arrangement of the molecules in a physical structure they should be prepared to interpret the whole universe. Under such a doctrine it might have been considered feasible to grant personal immunity from mental responsibilities, for a limited time, on the basis that "the end justifies the means." But now, the farther these scientists delve into the mystery of the atom the farther an ultimate explanation of the potentialities of life seems to recede from them. Certainly human life cannot yet be even remotely conceived in terms of known divisions of the atom.

Probably these scientists shun the consideration of good and evil because they have not yet been able to design a mechanical device sensitive enough to measure the mental differences between good and evil. They prefer to place their confidence in things which can be measured by instruments; albeit the mind must *select* the things to be measured, and also *design* the instruments to measure them.

These scientists insist that knowledge, more knowledge and yet more knowledge is the key to human progress. Of course, the psychic reference here is to scientific knowledge; but, probably the greatest summation of scientific knowledge ever applied to the solution of any particular problem was applied to the development of the atom bomb. The first public demonstration of the effectiveness of this bomb was at Hiroshima. I do not believe that the majority of the people present at that demonstration would vote that the bomb had any great ennobling influence on them.

## *Growth Implies Selection*

As a research engineer, I insist on some contemplation of how the apple got up into the tree. One may say it grew there; it is natural for things to grow; the hills are covered with trees, etc. But how did the young apple tree *select* those ingredients out of the soil which were appropriate to the making of an apple tree, and not an evergreen tree? And, after a few years growth, further *select* those ingredients suitable for the making of an apple, and not a lemon?

Scientists have demonstrated that different plants and trees, particularly those which produce edible vegetables and fruits, take different ingredients from the soil during their growth. They know in some measure the properties of certain fertilizers which will produce good growth. But what is growth? Whatever it is, everything that grows seems to possess the ability to select those ingredients from its environment which promote growth. A little information on this process of selection might be most helpful to mankind. It might help to reorient some mental confusions which have resulted from a misplaced emphasis on animal psychology.

The scientists discovered the adrenalin glands, and their function, which was to provide increased power to resist, or escape danger. By analogy, the mind needs something akin to the adrenalin glands to provide increased will-power so that the mind can resist or escape injury when a dangerous concept approaches. This basic need of selection, as between good and evil concepts, is recognized by practically all religions which have been virile enough to leave an imprint on human history. Christianity in particular has been very insistent on keeping alive a virile consciousness of good and evil; at least

it was until science softened the will-power of many of its constituent members.

This brings us face to face, as I see it, with the paramount paradox of the skeptical mind. Science depends for its very existence upon the general concept of *law and order* in the universe. The moment that concept is abandoned the very concept of science becomes untenable; and yet, those minds that insist on remaining neutral toward mental and moral problems, seem to proclaim that after the universe laboured through thousands of years to bring forth consciousness, presto! that consciousness is free and irresponsible altogether; except insofar as it is tied to the body and must conform to some of the laws of that body.

In the minds of those scientists who have done really creative work, those who have given practically the whole of their lives to their professional duties, this paradox did not mean much because, within their professional activities they used their whole minds for whatever they were worth. They selected from what they had tested.

It was within the minds of those human beings to which we may refer as belonging to the "scientific" public, those who think of themselves as having received something from science without having contributed much if anything to science, that a devastating lack of mental stamina appeared as a result of this theory of irresponsibility in the conscious stream of life.

Is it possible for an intelligent human being to really believe that the general concept of *law and order* in the universe is discontinuous at the threshold of consciousness? Is it not more reasonable to assume that the selective process continues on through the psychic realm, also?



## *Scientific Negatives*

A split-mindedness has persisted in many so-called scientific discussions, especially in those which have been addressed to the public within the last half-century. The most frequently repeated slogans in the traditional scientific credo appear to have been "doubt," "criticism" and "trial and error." All of these have an element of negation in them as contrasted with the aim of science which is to establish something positive.

Doubt is now in the old scientific implement barn, and its moldboard is rusty. It was used principally to plow under ideas so that they would be out of sight, and out of sight out of mind. Moreover, if one starts general plowing in any intellectual field today, he is apt to turn under some scientific concepts along with kindred weedy concepts which have sprung up in the last few decades.

Criticism has lost something of its pungency in scientific circles, but it is running wild in social and political discussions until it threatens to choke out coherent thinking in many minds, unless something is done to impress on the minds of our youth a more comprehensive process of mental procedure. Since improvement in mental procedures is a direct goal of the present thesis, further discussion of the limitations of critical thinking will be deferred until later.

To me, "error" in the phrase trial and error is in itself an *error*. One can repeat trial and error indefinitely without getting anywhere. Unless one can select something besides *error* out of a long series of trials he is getting nowhere. I think the phrase should read "trial and selection" even to define with approximate exactitude the process which the scientists have been using all these years. Of course, this implies that the mind might have

to be on the job practically all the time during the process of making scientific deductions. Perhaps the skeptically inclined wanted to avoid the appearance of giving even this much recognition to the validity of mind.

### *Absence of Psychic Content*

Another phrase which is dear to the heart of many a skeptic, and his contingent followers, is "the open mind." This phrase is so vague and lacking in vital psychic content that it can be interpreted to mean almost anything, or nothing. It is generally used to signify a mind receptive to suggestions that can be circumscribed by traditional scientific methods. If anyone doubts this statement, let him suggest an idea to a hard-boiled scientist, which cannot be resolved scientifically, and observe the reaction that he gets. Many a scientist restricts his interpretation even more; his mind is open to any scientific suggestion which is not *too widely at variance* with the particular concept of science which his mind is harboring at the time the suggestion is made. It usually requires something more than the suggestion of a comprehensive theory of perception to open such a mind.

At the other extreme, *the open mind* may signify a mind that is open to every wind of doctrine that blows. Like a weather vane, the mind may face the south-west just now, but at any moment may shift to the north-east. Such a mind is too unstable to follow, much less to initiate a mental procedure for thinking about thinking.

A windmill might be used to illustrate in a somewhat different manner the vagaries of *the open mind*. A windmill is certainly out in the *open*, with the atmosphere all around it. The difficulty is that many of those persons who dilate volubly on the merits of the open mind do not

have a "weather-vane pilot-control" to cause their receiving mental-vanes to face the particular breezes that may be blowing. They may argue that cold air rushes in to take the place of warm air, therefore the prevailing wind should be from the polar regions toward the equator, hence they *set* their windmill to operate on breezes from the north *only*; neglecting the breezes that might come from some other direction, on the theory that such breezes would be unnatural breezes anyway and should be ignored.

In other words, the skeptical scientist *locks* his mental windmill to operate on breezes from the scientific quarter of the universe only. Breezes approaching gale force from the philosophic and religious quarters of the universe may beat upon the mental vanes of his windmill, and all the world can see that those vanes do not move. His mind is in the *open*, but it is locked against operation except by breezes coming from the particular direction which he chooses.

The concept of a mind open in all directions does not help much in an approach to the solution of psychic problems. An ever present requirement seems to be an adaptability to focus or concentrate attention in a particular direction. This focusing of attention is somewhat akin to the focusing of a microscope or a telescope. In either of these cases the area of vision is restricted in order to reveal more clearly the outlines of that which is being observed. Even then, any interpretation of what those outlines signify depends upon the ability to make psychic deductions.

Apparently, we have not yet focused our attention on the beginnings of psychic activity. What is the minimum ability required for perceiving anything? How was, or is this ability to perceive being originated?



## *How is Perception Generated?*

I like to approach perception as something akin to electricity, which is not electricity, but something which is more adaptable and more subtle whose behavior can only be surmised by a comparison with some of the characteristics of electricity. Electricity is not produced by throwing off particles of metal either from the poles or the armature of the generator, but simply by cutting lines of force passing between the poles of the generator. Similarly, perception or waves of thought may be produced by some kind of "wireless" waves cutting lines of force passing between "polarized" brain cells. Another characteristic of the generator is that, it can, by turning a little of the generated electric current back around the poles of the generator to increase their magnetism, develop a powerful electric current.

Moreover, a flash of lightning from the clouds might be compared to a flash of insight in the mind; in each case a high potential seems to be built up from feeble beginnings.

The terminologies here used leave much to be desired; but, in any distinctively new field of investigation old terminologies cannot be definitive, they can only be suggestive. We are here primarily interested in using engineering procedures as a suggestive approach to Understanding and to Wisdom.

## *Engineering Procedures*

The engineer does not have to stop and enter into a long philosophical discussion as to which is the more important, *means* or *ends*. Nor does he have to puzzle his mind over the conundrum whether procedure is reality, or whether reality is procedure. From the beginning of



metallurgy to the end of electronics engineering depends upon procedures *within reality*. The results achieved are inseparable from the procedures producing them; albeit one result may be only the beginning of an arrangement of means for the next result, etc., through a long series of sequences.

An engineering process may begin with metallurgy which is concerned with improvements in metals and their alloys to make them suitable for various uses. These alloys then go to the testing laboratory where they are tested for ultimate strength, yield point, ductility, resistance to deformation by shock, resistance to corrosion, etc. Then these alloys are arranged in various combinations, each adapted to produce a particular result. Thus, in engineering progress the phrase, "trial and selection," expresses quite neatly and exactly the procedure which is followed. If one wishes to make creditable progress, he must not only *select* wisely the things to be tested, but must also select wisely the means for testing them. If he is working in a new field, after a series of tests, he should be able to perceive a trend pointing the way to the next test, or tests, as the case may require.

By an analogy with physical engineering procedures, "thinking" may be assumed to be the engineering of the mental procedures by which the concepts of the mind are fabricated, improved and made suitable for various uses. Then we should like to know something about the range over which these concepts are valid, something about their yield point, ductility, resistance to shock; and resistance to corrosion, etc. Next, how can these concepts be arranged in various combinations, each adapted to produce a particular mental result?

This engineering of ideas by formulating mental concepts to test other mental concepts has many possibilities

for increasing mental activities as well as improving the quality of the conclusions reached. Of course, the idea of testing one idea by comparing it with another idea is not new, it is as old as thinking itself. But, during the present century, the skeptically minded have persistently shunned the idea of even developing mental concepts which related primarily to mental achievements. They have been interested in merely describing physical phenomena.

Turning now to a consideration of what might be accomplished by the engineering of mental concepts, let us approach this subject as a research engineer (who is also something of an inventor) might approach it. He would first seek information relating to the basic trends of thought during the last fifty years or so. He would want to know: How those trends were initiated? What their consequences were? Should he be satisfied simply to provide rubber tires for old concepts? Or, should he be bold enough to introduce one or two new concepts in the hope of stimulating and stabilizing *thinking about thinking*?

A review of the mental attitudes existing during the last fifty years reveals a buoyant hope in society in general, and in the minds of a majority of the individuals composing that society, during the first decade of that period; but during the ensuing years this buoyancy ebbed, until, in recent years, it has become almost displaced by general despair. This calls for a review of the motivating concepts which generated those mental attitudes. During the years of buoyant hope a general faith in the possibility of improving both man and his environment prevailed; but, during this ebbing period the skeptically minded were pleading for the development of *imagination* rather than *faith*.

## *Definition of Imagination*

Under a scientific regime the meaning of some words may shift rather rapidly, due to the practice of redefining a word to fit a particular technical need. I shall go directly to my College Standard Dictionary, which was edited within the epoch here under consideration and published in 1940, for a definition of imagination: "1. The picturing power or act of the mind; the constructive or creative faculty. 2. That which is imagined; a mental image; a fantasm. 3. An irrational notion or belief. 4. Planning, plotting or scheming, as involving mental construction."

A definition which equates *creative faculty* to *fantasm* can hardly be satisfactory to an engineer who is trying to engineer mental concepts. This traditional practice of using vague and even ambiguous terminology when referring to mental activities while insisting on exact definitions, and sometimes painfully exacting procedures in scientific activities has produced a mental confusion in many minds verging almost on insanity. How could it be otherwise when a single word like imagination was expected to define the entire thinking process from fantasm through constructive thinking? This scientific procedure seems to contemplate truth as solidified imagination; that is, imagination verified in a concrete form by some mechanical instrument. This then stands as *truth* until some more powerful imagination is able to melt that ingot and recast it in another form. Thus the mind is expected to lead the way in all progress, as indeed I think it must, but the skeptical scientists are reluctant to grant full Citizenship to the Mind in their universe. I presume they fear the mental branch of the "Universal Congress" might out-vote the scientific branch, at least on some measures of mental procedure.



## Dynamic Faith

Let us turn our attention for a few moments to the word *faith*. I do not intend to use this word as John Dewey used it when he said, "Faith, to me, means I am not worrying." "Faith" is not the absence of something or other, it is a positive and creative process of the mind. At least that is what faith means to me as I have experienced it; and I believe that that coincides pretty closely with the Biblical definition of faith which was written nearly two thousand years ago, and has been virile enough to live through all the intervening centuries,—the Biblical definition of faith is: "the substance of things hoped for, and the evidence of things not seen."

From the standpoint of a molecular-theology "faith" is already a psychic compound of several separate concepts. More suggestively, from an engineering standpoint, dynamic faith is a *mental alloy* of at least three ingredients; first it has "substance" which is a concept of something real, it is not all imaginary; second, it has "hope" which is a concept of reaching forward beyond where we are; and third, it has "evidence" which is a concept of a direction in which further evidence may be sought. In other words, faith is a true mental alloy which possesses a quality that is not possessed by either of the three separate concepts composing it, nor by an agglomerate synthesis of those three.

There seems to be a sort of triple significance which has inhered in the word *faith* through the centuries; first, a diligent contemplation of all the available evidence relating to a particular situation, then a flash of insight occurs which reveals something that was not perceived before; and this insight is accompanied by a satisfaction or abiding joy which seems to be a stamp of approval, or immediate reward, for the concentrated effort that



was put into the contemplation; which may have continued for weeks, months, or years, as the case may have required.

Faith is that measure of validity which is within the moving spirit that propels a creative thought. Or, approximately, in engineering language, faith is the efficiency of the transformation of mental energy into valid conclusions.

Dynamic faith is emerging comprehension; it is perception becoming more or other than it was before; it is the very act of integrating percepts in the psychic realm itself; or, it is the very act of validating a belief within the psychic realm. If a perception is not a valid belief, it is not yet a true perception; and if belief is not yet a true perception it is only imagination.

These imaginary beliefs and the havoc which they have caused, and are causing, in modern psychic deductions will be more fully discussed as our thesis unfolds.

### *Images and Concepts*

In scientific jargon I suppose an imaginary concept can be as complex as you wish. At least, as complex as the means at hand can verify. This last phrase reveals the impracticability of *detached* imagination. Imagination does not work badly for a successful investigator while he is working on a particular hobby, because he will restrict his imagination to the range of those things which can be tested by apparatus that is available to him. But as a guide to what to think, or how to think, or even *to know when we are thinking at all*; imagination is wholly inadequate as a standard of reference in psychic activities.

The "free-wheeling" imagination in this scientific era of ours has produced a mental confusion in many minds

verging on chaos. Such minds are wandering aimlessly, as it were, in a tropical jungle of *images* without chart or compass, or any other means of pointing a way out of such a jungle. The mind of man is being *imaged* into ineptitude.

Instead of imaginative thinking, we need a new science of "Mentallurgy" to provide at least a few concepts rooted in mental integrity so that the mind can contemplate some of its own problems directly, without having to translate them into mechanisms for an attempted solution, and then translate them back again into allegedly mental conclusions.

Returning to electrical engineering for another comparison; in principle, so far as truth is concerned, the skeptic seems to approach the mind as a kind of storage battery which can give out only what it has previously taken in from some other source than itself. That is, the brain can take in ideas, deposit them somehow in the cells of the brain, and pass those ideas out later in the form of memories when the occasion arises. Likewise, a storage battery can take in an electric current, and then on demand, pass that current out again. Memory is only one function of the mind, and as I see it, only a secondary one at that. The ideas had to be created before they were deposited in the brain, just as an electric current had to be created before it could be stored in a battery. Memory is a storage or reservoir concept,—whatever is put into the reservoir is supposed to remain unchanged until it is drawn out of the reservoir.

### *Thinking as a Manufacturing Process*

Genuine thinking is a mental manufacturing process. In ordinary thinking the raw materials are concepts, and the finished product is a concept which is different from

the concepts out of which it was manufactured. In creative thinking, at least some of the elementary concepts may have to be manufactured before they become available to be combined or assembled in a finished product. In making the parts of a machine we may *start* with molten metal, that is something that is *fluid* which will flow into a desired shape. Our mental engineering brings us back to perception.

“Perception” is something more or other than a mere impulse, or reflex response to the stroke of a hammer on a bar of iron, or a pin prick on the tip of a finger. The hammer causes the bar of iron to vibrate, this in turn causes waves in the air which beat on the drum of the ear and somehow a perception of sound is created. In the case of the pin prick we have a different overall situation. The pin prick directly causes a nervous reaction which somehow is perceived as pain. This pain is already a composite perception, because it is not only the perception of something, it is a perception of something plus a quality of that something which is unpleasant. Not everything touched by the finger tips is unpleasant. In fact one may learn to perceive many different qualities through the sense of touch.

The significant point here is that no matter how variously one may examine perception, its valid content is always something more or other than the last nerve impulse which preceded it. The nearest known analogous comparison, insofar as I am aware, is to say that an electric light is something more or other than the last electrical impulse which is transformed into light. Scientists are not yet fully agreed as to whether light is a stream of minute particles of matter, or whether it is only a series of waves, but they have not refused to study light in its own right.



I do not think that we need to wait until the scientists have proved whether perception is a stream of minute particles or only a series of waves, before we begin to study perception in its own right. In other words, I contend that perception is a valid phenomena within the possibilities of our own universe, even though it did take thousands of years to develop an organic structure capable of generating enough perception to reveal something of its psychic potentialities when consciously recognized and diligently engineered.

If this theory is even approximately valid, then a mental concept is not the beginning of knowledge, it is an expression of what our perception already accepts as knowledge. In mentality engineering the *concept* is an integrated structure within our thinking processes, analogous to the materials of construction, or even whole machines, in the field of physical engineering.

### *Original, and Unprejudiced Thinking*

Thinking begins by perceiving a number of qualities, or relationships, before a clear definition of any concept can be expressed. Thinking begins with the mental faculty of being able to discern differences even before those differences can be described with references to known concepts. This is particularly true in creative thinking, and also in the formative years of life of every child. How can we distinguish between creative thinking and mere imagination? (This poses the greatest problem in modern education.)

How can we breach the wall of abstract conceptual thinking that has been thrown up all about us? From the time the child enters the kindergarten to the time he graduates from college his mind is gorged with scientific concepts. How can such a child have any other



idea of thinking than that it is a mere juggling of mechanical concepts? There are faint stirrings, in some skeptical scientific quarters, which indicate that the mind may be granted belatedly some recognition in its own right in the field of the approximate sciences. These scientists, however, speak of the humanities with an air and an unction as if it were the first time in history that anyone seriously proposed studying mental reactions on the human body relative to the total welfare of that body. This does not quite attain unto the vital content of a real science or a real religion. As I see it, religion is a reaching toward the ultimate possibilities of life, in terms of life. This is to be contrasted with life as it may be used to exploit the ultimate mechanical possibilities of the physical world.

Our theme here is Scientific-Theology, and not Theology as related directly to the ultimate possibilities of life; although a mental procedure is sought which will lead in the general direction of the larger potentialities of life. It is also an aim and a hope that this thesis may initiate the consideration of a scientific approach to the mind which will make it possible for the scientists, as individuals and as a group, to cooperate wholeheartedly with the forward reach in the religious aspirations of mankind, with the *united* hope that this earth may become a less be-deviled place in which to live.

### *Exercising One's Prejudices*

Many people think they are thinking when they are only exercising their prejudices; and often exercising these without keeping them on a leash. "If a body meet a body" with an equally loose prejudice a "dog fight" is apt to occur. Of course, my dog will not attack your dog, but if my dog sees that your dog is going to attack

my dog, he may leap first in self defense. Everybody deprecates prejudice, but many people are not very keenly conscious of the various mental activities which may engender prejudice. Prejudice is an attitude of mind, rather than a process of thinking, and yet prejudicial attitudes can play havoc in a trend of thought. Prejudices can best be eliminated by concentrating on more active forms of thinking which lead toward more generous and more considerate attitudes of mind.

Probably a good first step in avoiding some of the stultifying influences of abstract conceptual thinking is to refer to different processes of thinking by the use of adjectives, instead of trying to classify them in separate categories headed by nouns. For example, the noun "faith" has been pretty badly mutilated by criticism, but if we speak of "faithful thinking" and "critical thinking" the trend and the subject matter of what we propose to discuss is much more clearly indicated than if we said more formally that "we propose to discuss faith and criticism."

### *Critical Thinking*

Critical thinking is still rampant in politics and in popular discussions of economics and social questions wherever a modicum of scientific deduction is taken for granted. Inasmuch as there is a mental content in each of these topics, it could hardly be otherwise in a scientific era where science has not yet even proposed a serious program for guiding mental procedures within a field of distinctively mental activities.

Critical thinking is, and of necessity must be, *largely* based on what is already known, not only by the person who is criticising but also by the person who is being

criticised, otherwise it is not understood. If you insist that one may be instructed through criticism, my response is that if teaching is your aim, I should remind you that as a method of teaching, criticism has been out-moded for some time.

Critical thinking is the stock-in-trade of a skepticized mind, and the resulting mental restrictions shield that mind against the entrance of new ideas from the outside, and even inhibit the formation of new ideas from within that mind itself. This blanking-out process has restricted the standard mental vision of today to such an extent that any new idea must defend its right to call itself new; it must prove that its parents were capable of giving it birth; and it must confirm any claims which it may have to merit, by quoting comments that are accredited as being valid by any particular critic who might be approached. Under these conditions, infant ideas seldom survive their birth pangs; without spare time to grow up, they perish before maturity; every infant idea is forced to fight immediately for a place in the sun. Is it any wonder that ultra-modern man has no choice, but to fight, prepare to fight, and pay taxes?

Some critic may observe that the above paragraph leaves out constructive criticism. So it does, but the word "constructive" was left out intentionally, because in my thinking I propose to *try* to use words which are not so vague that another word is necessary in conjunction with an ambiguous word, in order more definitely to suggest the psychic content that was intended. In general discussions the critics themselves usually prefer the more indefinite appellation, unless they are cornered and asked to stick to constructive suggestions, because the highly combustible mixture in the word "criticism" keeps the fires burning beneath the cauldrons of controversy.



In any genuine sense critical thinking cannot be creative thinking, because, if a thought is new it must transcend what is old; and if it is radically new it may require a whole new set of concepts to adequately describe it. For a physical analogy, the electric generator was not created by critically studying the steam engine, even though the steam engine was contemplated as the means for propelling the first generator. Furthermore, when an electric current was generated the old "pressure gauge," which was adequate for measuring the potential of the current of steam going to the steam engine, was wholly inadequate for measuring the potential of the current of electricity coming out of the generator. A voltmeter, responsive to electrical impulses, had to be designed in order to measure the potential of that current.

In the muddled critical thinking of today much of the muddle is caused by ignoring boundary lines such as are clearly indicated in the last two sentences above. In general terms, the difficulty is an unexamined assumption that whatever set of concepts is adequate for the solution of one problem ought to be adequate for the solution of other problems. The ignoring of conceptual boundary lines such as these between science and religion has led to much of the acrimony, and most of the futility, which has accompanied the so-called conflict between science and religion. Whatever the ultimate division of culpability in this critical contest may be, the scientists must accept the major culpability on this count, because the scientists, in each separate branch of science, rigorously insist on retaining their right to coin the concepts which they use in their particular branch of science: but when they go forth to criticise religion they not only take their concepts with them, but they in-



sist that their concepts should be adopted as the mental media of exchange in ideas in the field of religion, also.

This highlights a general tendency in "run of the mine" critical thinking, namely, the tendency to drift or degenerate into ignorant thinking. I use ignorant here in its most generic sense, as a true derivative of the root word ignore, which is "to pass by unnoticed, or as being unworthy of notice." This tendency to ignore, for the moment, whatever one does not wish to consider is a treacherous element in much of our modern critical thinking. It is a mulish impulse to kick whatever comes in the way, and is probably the offspring of a disparate union of imagination and contemplation; it insists on the freedom of imagination without the integrity of contemplation.

### *Faithful Thinking*

The throwing of these two words imagination and contemplation on the screen, side by side in the above comparison, may help to visualize the real significance of faithful thinking. Faithful thinking in its rudimentary form is contemplation, with all of our perceiving faculties focused on something for which we are looking, and should include the looking for that something from all angles within our mental horizon. The adjective "faithful" carries with it a fidelity in observation which is one of the first requirements in genuine thinking. The word "thinking" carries with it the idea of an engineering procedure, rather than the idea of a fixed concept of any kind. In combination, the phrase "faithful thinking" carries with it the idea of an *effort* to perceive something which is not yet clearly perceived. In its most exalted form this *effort* reaches out toward the ultimate possibilities of perception itself, or of life itself, if you prefer to state it that way.

Educators have frequently referred to the opportunity which they would have if they could only devise a program for continuing the "*rate of learning*" which the child experiences when he is learning to walk and to talk. His whole being is alive with expectation; he does not yet know the difference between "*trial and error*" and "*trial and selection*", but unless he progressively selects something which is better than what he had tried before his progress will not be very rapid; also, his mind is not yet filled with exact concepts which might inhibit his reaching out, with the full power of his perceptive faculties, in whatever direction an opportunity to increase his perception may appear. When he begins his mental engineering by moving ideas about in his mind, his first thinking will be elementary faithful thinking because he will not feel sure of just what goes where, but he will search his mind for an arrangement of perceptions which will mean something to him.

At about this stage conceptual education may begin, but the first concepts which are planted in the child's mind may be the most determinative factors in his whole conscious life. These concepts should not be unduly restrictive, and yet they should somehow imbue the child's mind with a wholesome respect for genuine thinking. This still seems to point toward concepts which engender faithful thinking,—with a faithful regard for what is already established as being good, and an equally faithful reaching forward in a search for something better.

### *Prejudice, and Fixed Concepts*

If we begin to think critically at this point, the inevitable question is shall the first concepts impressed on the child's mind be scientific or religious? Immediately prejudice jumps to its feet, on both flanks, each to de-

fend its own. But we do not propose to listen to that dispute at this time. Our contention is that the critical approach is wrong. Our endeavor should be to guide the child's mind toward wholesome thinking. But you remonstrate, "He is only a child; he can't think." Remember, he is beginning to think, and if you fill his mind with fixed concepts he will never again be able to think freely.

Science may contend that its concepts are not fixed, they may be changed at any time, upon the presentation of *sufficient evidence*. In theory this is true, but in practice the child does not have "sufficient evidence" to permit him to answer any questions which are put to him in any other terms than by the use of the concepts which he has been taught. By the time his schooling is finished it is difficult for him to think in terms of any other than scientific concepts. This is just what the skeptical scientist desires, and then he proves (?) his consistency by insisting that his children should not receive any religious instruction until after they have arrived at an "age of understanding" so that their minds will not be prejudiced toward any particular religious concepts.

The unpredictable imagination of these skeptics is like a frog, one never knows "which way or how far it may jump." Such an imagination does not seem to grasp the idea that scientific concepts *may* prejudice a child's mind, but the same imagination has no difficulty in grasping the idea that religious concepts *do* prejudice a child's mind. This makes it almost impossible for a mental engineer to say anything very definite about the role which scientific imagination may play in childhood education. We may suggest, however, that at the tender age when a child is learning to walk and to talk it hardly seems necessary to try to stimulate his imagination. If



anyone has any misgivings on this score let him follow a healthy child at this age, unrestrained for even a whole day, and try to answer all the questions which that child asks. As noted above, at this tender age, what the child needs is guidance in the delicate technique of learning to think, that is, arranging his perceptions so that they mean something to him. The more highly developed animals do some thinking at this rudimentary level.

### *Conceptual Thinking*

Conceptual Thinking greatly enlarges the range and facility of our mental processes. By the use of concepts we do not need to see or touch everything that we perceive; but do not forget that the *capacity* to perceive was already there before the concept was introduced. Just as we had to have electricity before the engineers could devise the thousand and one mechanisms which depend on electricity to operate them, so also, we must have perception before we can formulate the concepts which perception can operate. In popular vernacular perception is the "juice" that makes the concepts "perk."

Many people throw imaginary concepts around in various memory patterns and imagine they are thinking. I suppose a concept, in a certain sense, is an image on the mind; but if such images are to have any value in a "train of thought" they must be coupled together like the different cars on a railroad train, and must also be coupled to the engine, if they can be expected to follow the engine. If image is used as being somewhat interchangeable with concept, then it can have none of the irresponsible freedom usually associated with the word imagination. It is at least limited to being connected to what is ahead of it, or to what is behind it, or both. It



may be even more limited than that; its function is assigned to it, and that often means a definite shape, as for example, the tooth on a gear. Perception assigns the function to the concept, and the concept must retain that function in all applications of its use in psychic deductions.

An infant concept is an integration of percepts. Every valid concept is something more than an image in a mirror. For example, true or false, better or worse, soft or hard, and easy or difficult, all of these have a quality which a mere reflection from a mirror will not reveal. To be sure, all of these express or refer to a particular quality; but what is the use of having a mind if it cannot approximate comparative value judgments? At least, to the extent of being able to formulate concepts and then to arrange those concepts in combinations so as to increase the range of our perception. We must first increase the range of our perception, and then test the *value* of the things in that increased range by "trial and selection."

### *Devilish Impulses of Imagination*

If those who rely on their imagination as a mental guide would use only their constructive imaginings, and forget about their critical imaginings, the results would not be so bad. For example, if the critically minded would re-read the story about "the tree of the knowledge of good and evil" in the Garden of Eden with a constructive intent in their minds they might find there an early attempt to state in the form of concepts the general problem of good and evil. If the critical scientists would further recall some of the concepts which were used, less than fifty years ago by themselves, to try to explain the structure of the atom, they might not be so picky about the concepts used, some thousands

of years ago, to introduce a great human problem into the growing consciousness of the human mind.

The Garden of Eden story does not mention a devil, but the critically minded had to have somebody to blame so "the devil" was created. Then, scientific imaginations announced that they had exterminated "the devil"; but the report of his demise must have been a little premature; at least, there is plenty of evidence that we still have devils among us. An animal may be a "beast," but only a thinking being can become a devil, because the very concept of a devil includes plotting and scheming to mislead the unwary. The devils of today possess a power, such as they never dreamed of possessing in the old days, because they have learned to use machines in their nefarious business. I must not pursue this topic any further here, or I will be trespassing on the domain of "honest to goodness" Theology.

However, inasmuch as a concept of amoral science is already in the scientific tradition, it is entirely fitting and proper that I should point out here that morally indifferent imaginations have foisted on the minds of an indiscriminating portion of our population an amoral psychology or theology which is "side-tracking" those minds. This theology, reduced to its lowest terms, is "the theory that the imagination, without any standards of reference, is an adequate guide for mental conduct."

The imagination was created long before the amoral scientists appeared in their scanty mental attire. Nevertheless, a definition of imagination was contrived which was sufficiently indefinite, and sufficiently inclusive to satisfy any mood and every need, insofar as any skeptic might have occasion to refer to any of the mental activities of man, whatsoever. The presumed merits of this imagination have been proclaimed at both high and

low levels on many occasions; but let us take a peep at some of the mental consequences of this imagination when it was at flood tide.

At almost the exact middle of our present century a comedian went on the air as master of ceremonies. The subject of the broadcast was, "The Quick and the Dead." I think the comedian must have chosen this title just as a "catch phrase," because so far as I could see, it bore no relation to the subject matter of the broadcast. The aim of the broadcast was to *instruct the people* on how atom bombs are made, or may be made; what the difficulties are in making them; and what their potentialities are, or may be. The comedian made it clear, in no uncertain terms, that *the people ought to know these things* because it is up to the *people* to decide what should be done with the atomic bomb. No reference was made to any program for presenting this question to the people so they could *vote*, or otherwise express their collective opinion on this critical decision. Certainly, the people were not asked to vote on whether a first atomic bomb should be made. Whatever else may be said here, this distant spacing of responsibilities does not exemplify coherent mental engineering.

The "Survival of the Fittest" has long been a favorite retreat for impulsive imaginations. If the survival of the fittest had been left in the setting in which Darwin presented it, it would have been harmless enough; but, it was dragged out into the limelight and impulsive imaginations rechristened it, "the survival of the fittest fighters." These imaginations deleted all serious reference to superior mental equipment which seems to play a more dominant role in ultimate survival than fighting equipment.



In whatever manner the individual responsibility for the atomic bomb may be allocated, it is clear that the atomic bomb was produced by scientific thinking, and not by religious thinking. How will those who engineered this undertaking explain their present mental predicament?

As I see it, this mental predicament is analogous to that of the confused football player who, having gotten a firm hold on the ball, started to run with all his might toward the wrong goal post,—he could not win the game by running in that direction. Likewise, we cannot win in the game of life by running in the direction of those atomic structures which *exist* at the center of the sun. No scientist even postulates that there is any perception at the center of the sun which can discern what is, or may be happening in the outside world. I suppose, if the sun could think, we might say that it has contributed generously toward the evolution of something “higher than itself.”

### *Organisms Generate Perception*

Perception appears at the more complex evolutionary end of structural arrangements rather than at the less complex atomic end. Scientists seem to concur that it has taken thousands of years to evolve a cumulated organism capable of thinking. Then, impulsive imaginations conceived the idea that the ultimate possibilities of mentality might already be circumscribed (even at such an early stage in conscious thinking) by simple deductions made from what was already known about the physical world. *There is a fascination about thinking that one can cerebration the limits of cognition, which has plagued the mind of man since the dawn of consciousness.*



## *Cumulative Aspects of Evolution*

The fascinating futility of attempting to set limits to the cognitive process, whenever a perceptible mutation occurs within a field of mentality, will be more fully discussed later. The particular problem at this point is more insight into the general cumulative aspects of evolution.

A promiscuous jumbling of the erroneous, the accidental, and a specific, does not get one ahead very fast in the development of mental acumen. If one wishes to have an electric light in his home he employs an electrician to wire his home, and to connect that wiring to a power station, so that when he turns a switch in his home he gets light. The capacity of that light does not depend on what may be accidentally brought under that light to be examined. The voltage and amperage of the electric current at that light determine its capacity, in combination with the resistance in the filament of the lamp itself. If the *filament* is too thick the engineer will get heat and not light.

All this emphasizes the exacting structural relationships which are required to produce a steady light by the use of a current of electricity. How much more subtle must the structural relationships be in an organism which is capable of producing the capacity to perceive? Cumulations in an organism imply growth; and growth implies a selective capacity. It would seem reasonable then to assume that evolution has been a selective process from the beginning, up to, and through its highest manifestations in the mind of man.

Whatever the innermost processes of growth may be, a simple engineering approach to evolution seems to suggest that the whole evolutionary process is an engineering process. That is, evolution has been, and con-

tinues to be a process of selecting and putting together those things which will work, and will continue to work, for at least a considerable period of time. *Evolution eliminates accidental considerations by selecting and conserving those things which originate and promote growth.*

Selective integration appears to be a fundamental principle or capacity in all healthy growth. This capacity to unite voluntarily with some other "willing partner" appears to be inherent in all growth. There also appears to be a further selective capacity in Nature which may be tentatively perceived as akin to "insight." This may be suggestively approached as a ray of perception which pilots the forward urge to a new mental mutation. This introduction to a direct consideration of the evolution of psychic phenomena brings us to the How and the Whence of Thinking, which is the subject matter of the next Chapter.

### *Trying to Believe, or to Think?*

In closing this Chapter I wish to introduce a concrete illustration of modern mentality in action. I refer to a "Town Meeting" which was broadcast over the air on November 22, 1949. The subject of the broadcast was: "Do Our Churches Offer a Sound Basis for Faith and Living?" This is true to form, in that it is indefinite enough to stimulate controversy.

As a mental engineer I should think that the gist of what was intended could have been more pointedly stated as follows: "Does Religious Theology Offer Better Guidance for Growing Boys and Girls than Scientific-Theology?" This could not have been used for two obvious reasons: first, the public mind was not attuned to this terminology; and second, there was no formulated

Scientific Theology in those days. Let me try again: "Do Our Churches Offer Better Mental Guidance than Our Scientific Laboratories?" This is couched in well known concepts, and it states a clear demarcation for discussion.

The word "Sound," in the topic as used, provided an opportunity for both sides to speculate as to precisely what this word *sound* might mean in that setting; and, for the negative speakers it provided the additional opportunity to lean back on their imaginative connectives and take it easy. The most spectacular flares occurred during the question and answer period. I quote directly from this section of the "Bulletin of America's Town Meeting of the Air": \*

"Dr. Sockman: I'd like to step from Freud up to Dr. Edman just a moment (laughter) and ask him this question. He seems to blame religion for having had all these centuries and yet leaving the world in such chaos. I'd like to remind him that that chaos has been intensified since science, of which he boasted so much, has come into view.

I agree with most of what Dr. Edman said in criticizing the church, but the only substitute which he gives is what he calls the science of nature and human nature, and when the world is left in such a chaos as he describes what faith has he in the science of human nature left to itself?"

"Dr. Edman: The answer to that is so simple that I almost hesitate to make it. (Applause) We haven't even tried science with reference to human and political and social affairs—we've used it simply on the machinery of life. We haven't given it a chance to help us in understanding ourselves except in the very young science of psychiatry . . ."

Hearing this statement over the air was one of the culminating incentives which persuaded me to attempt the writing of this thesis. This was a clear challenge to

\* Volume 15, Number 30. Page 15.



my thinking about mental responsibilities. How could scientists, and particularly philosophers who espoused the cause of science, be so negligent toward the development of the mentality of man? How could they observe the increasing mental chaos all about them and continue to neglect any organized effort within their own ranks directed toward the checking and amelioration of chaos in the minds of men?

They were willing to criticise religion for not having created a more stable mentality in the first place; and then, to continue to criticise religion for not preventing a treacherous decline in such mental stability as had once been created. What were they themselves thinking about all this time? Well, Edman, in his original argument in the above broadcast, said:

“The churches seem to me on the horns of a long familiar dilemma. They must either follow the lines of some strict and traditional orthodoxy or compromise with modern confusion and become equally confused. . . .

Would-be believers are thus driven to two bad alternatives: One is believing what is doubtful or, two in trying to believe become more dubious still.”

This partial analysis of a confusing situation recognizes a dilemma with two horns; but the scientific imagination, present and acting, was only capable of suggesting a bad compromise that engendered increased confusion in the form of an enlarged dilemma with many horns.

Is it more profitable, mentally, to try to believe *what has been*; or, to try to think creatively about *what can be*?

Edman's predicament seemed to be conceptual indigestion. He seemed to be trying to say that religion should stick to its conceptual beliefs, bad as they are; and that science should stick to its conceptual beliefs,



bad as they are; because, if religious concepts are compromised with scientific concepts the result is acute conceptual indigestion. The idea of imagining a few new scientific concepts, or improving the mental alloy in a few old ones, so that those concepts might more readily coalesce with religious concepts, does not seem to have occurred to him.

Apparently, he used his scientific concepts, just as they were, as a standard of reference by which to judge the *soundness* of the mental activities occurring in the minds of church-going people.

This, as was pointed out at some length in the earlier pages of this Chapter, is a distinctively *unsound* conceptual practice. Unimaginative facts cannot be assembled and held together, in a conceptual integration, simply by *imaginative connectives*; and, conceptual thinking cannot proceed very far without using conceptual integrations.

In answer to another question during the above discussion, Edman said:

“Of course myths, taken with a grain of salt as a form of poetry, are extremely significant, and if the churches would tell us frankly that they are dealing with one of the forms of poetry—about ultimate things—I would be much more sympathetic.”

That is a clever way of suggesting a method of causing people to stay away from church during a scientific era. At least, the traditional scientific temperament has not been much interested in serious poetry. I wonder if Edman ever stopped to think how large a grain of salt every thinking person has to take when trying to interpret any complete sentence made by any scientist who professes to use only his imagination as a substitute for a natural process of thinking. Every such sentence is

ostensibly coined by using factual nouns held together with imaginative verbs and rounded out with imaginative adjectives and adverbs. Certainly, verbs, adjectives and adverbs have never been validated by any such mechanical process as these scientists insist on using to validate a fact. How then can imagination fanciers, who have not yet coined enough factual concepts to reach half-way to a truly religious concept, expect to advise, or even to understand religious thinking?

Does not the above imaginative, compromising, and philosophical befuddling, of *concepts* indicate and emphasize a need for at least a minimal Scientific-Theology, perhaps in the form of Mentality Engineering, to provide some guidance for growing boys and girls, during their scientific education, so that they might emerge beyond the present psychic confusion into a more healthy mental atmosphere?

## CHAPTER II

### THINKING, HOW AND WHENCE?

#### *Measures of Validity*

In beginning a formal presentation of mentality procedures the first query which arises is, How is validity determined? Or, How are validities determined? In mentality engineering as in physical engineering, the idea of "measuring" is of primal importance. The engineer measures sizes with a micrometer, velocities with a speedometer, and distances with an odometer; he measures changes in temperature with a thermometer, he measures changes in voltage with a voltmeter, and changes in the current flow of electricity with an ammeter.

In beginning an engineering approach to mentality; What is the measure of truth? What is the measure of knowledge? What is the measure of wisdom?

Truth is that measure of validity which is within those concepts that are in one's mind.

Knowledge is that measure of perception concerning mass-energy relationships which are within one's mind at any particular moment.

Wisdom is that measure of perception concerning mass-energy relationships which are being interpreted in one's mind relative to their eternal significance.

Truth is a measure of validity, unqualified. Knowledge is a measure of perception conceived as being in-

stantaneous or all-contained within a present moment. Wisdom is a measure of perception conceived in terms of its eternal significance. I avail myself here of the scientific privilege of defining a word in the sense in which I use it.

"Eternal" signifies an existence *within time*, an existence which cannot be separated from time. It is a concept of duration within time. It cannot be conceived of outside of time. The very concept of *being independent* of time is inconceivable. The concept of eternity is not an abstraction which can be conceived of as independent of time. As a concept, it has neither beginning nor end, but movement within time. It is precisely in relation to this movement within time, from which perception cannot be isolated, that we use *eternal*, in our engineering definition of wisdom.

It is largely because science has not given us any comprehensive definition of perception, in scientific terms, that skeptics can continue to imagine that perception has no relation to time. It is the "abstract" quality, that is, the imaginary quality in scientific concepts, which permits science to ignore perceptions which are experienced only within the ongoing stream of time, that is, within an ongoing continuum which is eternal.

My interpretation of the concept of the eternal, or eternity, is not wholly new, except perhaps to a skeptic. The phrases "through all eternity," or "throughout all eternity," have been used frequently, which certainly imply that the simple use of the word eternity was not intended to signify *all* eternity. Inasmuch as the skeptic does not wish to get his thinking enmeshed in any *concept* of time, he ignores all considerations of time in his *imaginative* conceptualizations about thinking. It is largely due to the *omission* of any reference to the on-



going continuum of time that skeptics have been able to maneuver their imaginative musings into a semblance of thinking.

Of course, science does not ignore all considerations of time within its own field of imaginative contemplations, but it refers to time primarily in mathematical symbols and endeavors to give an imaginary concept of time by the use of a string of figures. These figures usually refer to the *age* of the sun, the *age* of the rocks, the age of man, both collectively and individually; that is, *how old* is the human race, *how old* is an individual man, etc. They do not attempt to explain the *significance of ongoing time* within these different ages. In one sense, they do recognize the ongoing continuum of time in that they do not attempt to explain *how* this universe, in toto, was created. They accept no beginning and no end as an imaginative concept but they do not explain or attempt to explain how perception, which they use to interpret everything that they do, has its existence only within a time continuum. The skeptics eschew the word eternal because it snarls their imaginative conclusions.

The mental aspects of wisdom will be discussed further, later; and references to an engineering concept of wisdom in relation to other thoughts about thinking will be referred to as this thesis unfolds.

Throughout the early years of the present century, Truth was usually emphasized by the use of a capital T; and all psychic searchings and inquiries were supposed to be directed toward the discovery of "the Truth." But today, we have a multiplicity of specialized inquiries directed toward the determination of relative truths within limited fields. This emphasis on the relativity of smaller truths has led many loosely organized mentalities to conclude that all truth is relative. At the present

level of mental evolution this is largely true; but, true relative to what? Is a particular idea true relative to physics? Or, is it true relative to mentality? Or, is it true relative to some integrative factor which as yet can only be surmised? At all events, mankind is not yet ready to abandon its search for truth.

Creative thinkers often manifest a *fierce* mental integrity. Mental mutations sometimes have to assume an aspect of *fierceness* in order to survive in the hostile or indifferent atmosphere into which they are born.

A mental mutation which creates a new species of concepts is akin to a physical mutation which creates a new species of animals. Each may be born in a hostile environment and may not survive; but, the theory of mutations is not thereby invalidated.

Mental deductions today often have a proprietary quality in them which is something less than honest, not to mention integrity. Even strict mental honesty is not enough. Honesty is being true to what is already known.

Mental integrity is not only being true to what is already known, but it includes the being true to the slightest urge or suggestion of how something better may be known. Honesty is being faithful to what is known. Integrity is being faithful also in an earnest search for something better. Integrity includes mental fidelity *while learning*.

A first requirement, even in contemplating measures of validity, is a mental integrity that should be as unyielding within a field of mentality, as is the force of gravity in a cosmos of physics.

The modern "erroneous" thinking, that is, thinking along the theoretical line that errors can sometimes add up to something good, often results in the cumulative error of not thinking at all. A number of mental errors,

each of which is too small for a skeptic to consider seriously, may soon add up to the one large error of not thinking at all about thinking. This theory of expecting good to emerge out of errors is exemplified in many impulsive ejaculations of today. The unjustified expectations that errors may somehow emerge into mental integrity inspired the writing of the following soliloquy.

*The Devil's Mid-Century Soliloquy*

"Many people seem to think that the scientists threw me out of the Universe; but, they only changed the name of my business; they only substituted 'error' as a pseudonym for all the sins and evils in my domain, and then they talked and acted as if they had dethroned the old proprietor. But not quite; I am still around. In the phrase 'trial and error' I am introduced from the pulpit, the lecture platform, and in multitudinous conversations wherever the proprieties, or a proper mental conduct is under consideration. This keeps my business always before the public. Wherever men dicker in my wares I am always there.

"When the minister devotes more than half of his sermon to errors of various kinds, he automatically convinces many of the members of his congregation that I am more powerful than 'the still small voice' which he occasionally mentions; and consequently many people do not bother to go to church any more. When the skeptics proclaim that it is only through projection against a back drop of *error* that we can know anything; I shout a loud, 'Amen.'

"Many people who might not be willing to stand up and be counted among the skeptics, nevertheless, harbor a lurking conviction that good can somehow come out of error. This theory that error can and does somehow



eventuate in knowledge, and even wisdom, functions to quiet jittery nerves in the more timid of my followers. The old idea that the highways in my kingdom were 'paved with good intentions' served something of this same purpose; but now however, I find it necessary to extend my road systems into mental wildernesses, which have remained largely uninhabited until recently. Here I find it unprofitable to use such durable materials as 'good intentions' for road surfacing, and I simply use the more plentiful and less expensive mental plastics.

"The new profession of psychiatry has enlarged my activities in the field of mental maladies. The psychiatrists act as if they were exploring a new field of psychic impulses; but even now, they are beginning to dabble in the old principles of Theology. I encourage them to think that they have something new; and I point out to them that if they can persuade the public that they have something new, their clientele will be much larger than if they advertised the fact that they are dealing with psychic phenomena that is as old as man himself. They are not fooling me, I have been dealing with mental weaknesses for thousands of years.

"As for persuasion, that has always had a high rating among my potentialities. I used to be credited with being able to quote the Bible to justify my wiles; and so I can; but now, I have a greatly increased quantity of material from which I can quote plausible mental deductions to cover almost any contention that I may wish to make. Tons of scientific data; tons of scientific discussions; and multiple tons of secular literature provide an almost inexhaustible supply of quotable material to plausibly verify any conceivable sophistry that I may wish to proclaim.

"I always keep my clients conscious of the certainty



of physical death. If anyone begins to talk seriously about constructive mental potentialities, I say to him, 'Don't be silly, you will have difficulty enough in trying to provide for the sustenance of your living body without seriously bothering your head about mental potentialities; "eat, drink and be merry for tomorrow you die."' This old slogan never loses its potency.

"The extreme reliance that was placed on imagination, during the first half of this present century by millions of prospective converts, provided an opportunity for much easy proselyting that even I had not anticipated. However, it begins to look as if my hilarious antics with imagination might have to be toned down a bit; but, considering the fact that I never did have a structural body other than in the imagination, and insofar as I may have been incorporated in the minds of my henchmen, I am doing pretty well. I am not worrying, so long as the psychic world is split into factions, and about half of them insist that they cannot get along in this world without using at least some of my tactics and strategy, my opportunities for inciting to violence and antagonisms are almost unlimited."

The only basis on which "error" can be coherently interpreted as being effective within a process of creative thinking is to assume that the mind of man is still so dormant and indolent that his mentality must be *stabbed into action*. This dormant postulate is not very complimentary, to say the least, and to say more implies an inherited resistance to thinking. As man emerges from the influence of his animal instincts it may be reasonable to assume something of such an inheritance, but after man has emerged into an intelligent human being it seems more reasonable to assume that he might use

some of his intelligence to stimulate him into moving forward toward a planned inquiry into the potential possibilities of his own mentality without being *prodded* into that activity.

Some of the widespread consequences of the imaginative postulate that "error" may, occasionally at least, be transmuted into "integrity," will be discussed in following Chapters; but, here we wish to consider a more direct approach to mental integrity.

### *Thinking Transcends the Accidental*

The engineer may discover, occasionally by accident, something which is of value to him, but that does not mean that the processes of engineering are *accidental*. Quite the contrary, successful engineering means the selection of those things which are *not accidental* in any particular process. Similarly, thinking, as mental engineering, cannot expect to pick up accidentally, outside of itself, the greatest achievements of which it is capable. Thinking is a process, and every process must *transcend the accidental* in order to *become* a process.

Instead of confusing our mental activities with the limitation of error or accident, let us search for concepts which are more like *steel*,—with a range of possibilities and qualities that permit a selection to suit a particular occasion. The competent engineer specifies the particular grade of steel needed for a specific job. With a mentality engineering approach, let us inquire further into the functioning characteristics of genuine thinking.

Thinking, if it is vital, must have some forward thrust; and every forward thrust requires some propelling force to initiate that thrust, irrespective of whether that thrust is physical or mental. Our dynamic approach to the activities of the mind is based on this fundamental princi-

ple. Engineering is an inclusive concept which is used to designate that group of physical phenomena that deals with the starting, and the stopping, and the regulating of the major mechanical activities that occur all about us. Have we any other and better basis for *outlining in theory* the activities of the mind?

If and when men earnestly endeavor to account for mental activities on an energy basis, rather than on a factual basis where facts may be "patched together in a crazy-quilt fashion," then many new conceptual terms can be introduced which will explain many specific mental processes more coherently than can be done with "imported" engineering concepts. However, engineering concepts, which are somewhat familiar to the public, will continue to be used in a suggestive sense to outline possible mental procedures.

Many things were made possible by an engineering approach to an understanding of electrical phenomena. The engineers do not yet know what electricity is, but they do know how to use it for many useful purposes. If the activity of thinking is in some measure analogous to electrical phenomena, then the production of a flow of energy is important. If the circuit leading to the shunt winding around the poles of an electric generator is open, the armature can spin indefinitely without producing a powerful current. However, if the shunt circuit is closed so as to conduct some of the current being generated around the poles of the generator, the magnetic flux will be increased as the armature speeds up, so that at normal speed a powerful electric current will be generated.

An electric current can be used to light a light, propel an electric motor, or to operate a recording device. An electric current can be rigged to illuminate objects pass-



ing in the dark, and to record their passing. Please note that this current lights its own way, so to speak. Is it not probable, that something akin to this is what happens when a current of perception both illuminates and records what the mind perceives during a flash of insight?

Electricity may be produced by other means than by an electric generator which has a rotating armature. Thunder clouds in the sky may produce some brilliant flashes, in the form of lightning. If one is looking for something in the dark, a flash of lightning may reveal it to him. Or even a firefly, if it is close at hand, may assist in finding something in the dark.

But, we are here primarily interested in flashes of illumination in the form of insight, rather than in the form of light. We are using electricity and light in an effort to get some insight into a possible method by which nature may use perception to increase the voltage of an urge, and then release that voltage in a flash of insight. Under favorable conditions, mass-energy relationships within a mentality field seem to be capable of perceiving, integrating and memorizing, all within the "twinkling of an eye."

### *Integrations*

Engineering is quite as much a series of integrations, as it is a series of operations. It provides means for starting and stopping its operations. It also provides means for integrating operations as they proceed. For example, it provides thermometers to indicate rise and fall in temperature while a process continues; it provides a "pressure gage" to show the potential of the steam in a pipeline; it provides a voltmeter to show the potential of an electric current in a transmission line, etc.



If a man's mental activity is equal to the task of taking a "reading" from one of these instruments, that act produces a concept in his mind which is in the nature of an integration. If now he takes another reading from the same instrument he has another integration in his mind. If he perceives that the two readings are not the same, he can subtract one from the other and this gives him a third integration. This third integration shows that there was a change in potential. If he can now remember which reading he took first he can deduce a mental conclusion as to whether the potential rose or fell between the two readings. If he had been forehanded enough to have a "stop" watch, and had recorded the lapse of time between the two readings he could have deduced the "rate of change" in potential.

These examples of mental activity illustrate clearly that there are plenty of operations and integrations taking place in the mind, even relative to a simple mental conclusion. The above paragraph indicates that *integration* is primarily a mental concept, there is no exact "objectification" of it outside of perception. One assembles or combines parts into a unit, or a whole. A synthesis or an agglomeration, may produce a mass of material but one does not think of this mass as an integration, unless he is thinking in terms of a generic mental concept which includes the idea of bringing things together into a specific kind of *evaluated* summation.

Integration is an evaluating process. When one finds out how many dollars he has in the bank, he may still have to multiply by a depreciation factor in order to get the value, or integrated purchasing power of what he has in the bank. Mathematics is useful in designating the number of dollars that one has in the bank; but

mathematics is only a "measuring rod," which in no-wise contains the intrinsic value of that which is being measured.

When one draws money out of the bank he subtracts the amount of that withdrawal from the amount that *was* in the bank before. A minus quantity is what is being spent, or what has been spent. A minus quantity is that which has been withdrawn from a previously integrated quantity. Thinking along this line "doubt" becomes an imaginary minus quantity. Another form of *doubt* is what one person imagines that another person has or had, but which that other person never even imagined. Before becoming any more involved in negative thinking, it may be just as well to take a peek at the origin of a field of mentality.

### *The Origin of a Field of Mentality*

Mentality may depend, for its appearance in each succeeding generation of mankind, upon the faint impression of itself within the instinct of every child; but, if that impression is to be developed into virile mentality, within the short lifetime of an individual, it must be educated to develop its own forward urge into a resident capacity which is capable of distinguishing better from worse, good from evil, at as early an age as is feasible. When perception reaches that stage where it can integrate concepts sufficiently to distinguish between a better and a worse concept, an operating field of mentality may be said to have been generated. That is, when a person can evaluate one concept relative to another he is beginning to think.

Nature appears to have developed whatever capacity for perception which we may now possess by a process of selection and cumulation. It seems reasonable to as-

sume that that process may continue on through the domain of mentality. If the theory of evolution has any cogency whatever, we must assume that "Natural Selection" continued through many thousands of years, not to say millions of years, before the *perception* of *consciousness* appeared. Conflicts there may have been; retrogressions there may have been; trials there may have been; experiments there may have been; but of one thing, we can be incontrovertibly certain, integrated cumulations appeared which had not immediately preceded them.

Selection and integration thus appears to be fundamental in the very process of evolution. Selection occurs in chemistry, and in metallurgy where the ingredients themselves seem to *pick out* those ingredients with which they can combine, or "join hands" in an integrated combination. Here integration carries the idea of *selective* uniting, in the sense of "*willing*" or voluntary uniting. This selective uniting, or integration, becomes more pronounced in the vegetable world; and yet more pronounced in the animal world. But the mountain peaks of selection appear only in a mentality field.

We shall use the term "selective integration" to designate the selective or voluntary uniting of ingredients into a more inclusive accumulation, to distinguish from a "promiscuous" or a "forced" accumulation. Promiscuous accumulations are too numerous to mention; they include sedimentary deposits, earth and rock mixtures of all kinds, buildings, etc. Forced accumulations include those things which are pressed together, either with high or low pressure, and remain united. Selective integration is not so easy to define. In general, many chemical compounds; many metals and their alloys; and each, and every animal in any well established spe-



cies appears to be the result of a series of selective integrations.

Selective integration appears to be a fundamental principle or capacity in all healthy growth. This capacity to unite voluntarily with some other "willing partner" appears to be inherent in all growth. There must be some further selective capacity in Nature, however, which may be tentatively perceived as akin to "insight." This may be a forward projection of perception, that pilots the forward urge to a new mental mutation.

At all events, it appears that "selection" is a deeply rooted principle in Nature; and that this *selection* must be present in a vital available form at each truly evolutionary mutation; or as I prefer to state it, at each *evolutionary integration*.

A "fetching" evolutionary integration is one which retains the capacity to again selectively integrate itself with another factor which will raise itself one step higher in the evolutionary scale. How do I know which way is *up* in the evolutionary scale? I assume that that direction is *up* which increases man's perception of the conscious urge which may lead to yet another evolutionary integration.

The reader may say this is a big order. So it is; and I do not expect the reader to get all that is meant here, by one reading, or even by two readings; but it does give us a glimpse into an enlarging mental territory which may be worthy of further exploration.

### *The Longest Arrow in Evolution*

If, and when, mankind undertakes a conscious engineering of mentality, then, within this field of mentality the law of *mental integrity* will have to be as rigorously observed as is the law of gravitation within the physical



sciences today. Man already knows that if he wishes to get any physical results he must conform to the laws of physics. Is it too much to expect him to learn that if he wishes to obtain optimum mental results he must also *conform* to the natural laws of mentality? Or, as I prefer to state it, *conform* to the *natural imperatives* which are required within a mentality field to produce perception and to increase perception. The word "imperatives" is an integration of the phrase "mass-energy relationships within a continuum of time" which are required to produce the achievement of a particular function being referred to.

When consciousness appeared, and began to insist on changing some things, it would seem natural that the regulative function of instinct should be carried forward in some form. From a naturalistic standpoint this seems to be one function that religion has endeavored to fulfill since man became man. This regulative function, within the mind itself, has often been referred to as "conscience."

Even as late as the beginning of this century, many people believed that conscience was inherited; and, that it was a fairly dependable guide to what is right, and what is wrong, if one would only hearken to its dictates. During the first few decades of this century, however, experimental biology, aided and abetted by modern psychology, so vehemently emphasized detached imagination as the only natural mental guide that anything resembling a conscience was only remotely considered as being transmitted by inheritance. A great number of young people grew up in an imaginative atmosphere without a consciousness of a conscience, and without any thought of needing a conscience.

Without spending any more time trying to elucidate

how a conscience might have evolved out of instinct let us concentrate more on the potentialities of consciousness as something beyond instinct. By unanimous consent, consciousness appears to be the result of a later evolutionary integration than those integrations which produced instinctive patterns of conduct only. This indicates a *trend in the forward urge* in nature, upward, from the amoeba through instinct to a perception of consciousness itself.

During our scientific era there has been a tendency for individuals to channel the whole of their inherited forward urge in a particular direction. Each individual *trended* toward a particular objective rather than endeavoring to envisage a general objective toward which all creation trends. This specialized trending has obscured, and deflected attention from the consideration of, a dominating trend in nature which seems to point toward mentality as the ultimate objective thus far revealed by nature. The longest "pointer" in evolution is *the forward urge* in nature; and, the ultimate achievement, thus far, is a mentality that is conscious of itself and of some of its possibilities.

One characteristic of life in general appears to be an unquenchable urge to do something. Individuals may lose their sense of direction; that is, they may choose a trend that leads away from the main line of evolution, and spend their substance in a far country some distance away from the main trail that leads toward the top of the mountain of mentality. The scientists tell us that there are some species of ants which have apparently lost their forward urge completely; they have reproduced their kind for millions of years without any change. There are other animals, like the dinosaurs, which possessed a forward urge toward a particular ob-

jective, such as a mere increase in size. Nature apparently is not much interested in *mere size*.

There are people today, who talk as if they were planning a trip to the moon. Just what for I do not know. According to the most reliable reports, the living conditions on the moon cannot be as good as they are here on this earth. When these people reach the moon, if they ever do, I think they will find that, during all the years of their preparation for that trip, they were drifting away from the main line of evolution. Nature does not seem to be much more concerned about mere speed than she is about mere size. Certainly, even with jet propulsion, man can hardly expect to reach the speed with which he is already being hurled through space by this planet on which we live.

The longest arrow in evolution appears to point directly toward *a field of mentality* as the optimum achievement in evolutionary integrations; unless we should consider spirituality as a further achievement beyond mentality. This would lead us beyond the scope of this thesis. We shall be satisfied here if we can lead those minds, which have become so skepticized that they cannot understand religious concepts, to recognize some of the basic evolutionary integrations within which perception appeared, first feebly, then emerged into a consciousness of some of its potentialities. Inasmuch as consciousness has greater freedom than instinct, it also seems probable that the varieties of valid mental achievements should be much greater than those in the instinctive world.

### *Varieties of Behavior*

Natural phenomena is full of sudden modifications in physical properties. If the temperature of water is low-



ered, it may become ice, which is a solid. If the temperature of water is increased, it may become steam, which is a gas. And Bridgman has discovered that by changing the pressure on water it may be changed from water to ice, and from ice to water several times by simply raising the pressure high enough at normal temperatures. And, the chemists now tell us that there are several different kinds of water; heavy water, etc. Furthermore, water expands as it solidifies, whereas, the general law, for liquids in general, is that liquids contract as they solidify.

Water is, by all odds, the most widely disseminated liquid on this earth. This is why water was chosen to illustrate the sudden and marked changes in behavior which may occur within conditions that are familiar to everyone. The behavior of water as a liquid is decidedly different from its behavior as steam, which is a gas. This is one reason why I cannot see how so many scientific minds can insist on studying experimental biology as a guide to the discovery of the potentialities within a field of mentality. Mentality is far more widely different from instinct than is a gas different from a liquid.

Another engineering illustration may help to clarify my thought here. An electric generating unit may include a steam boiler and a steam turbine, as well as the electric generator proper. A steam boiler requires a furnace beneath it, and fuel to burn in that furnace, in order to generate steam; then the steam is conducted through a pipe to the turbine; the action of the steam on the blades in the turbine produces power which propels the rotor or armature in the electric generator. The designing engineer had to consider the mass-energy relationships within each stage of this operation. The relationships between mass and energy in the boiler are



entirely different from the mass-energy relationships in the turbine and even more different yet from those in the electric generator itself. The separate concept of the boiler, the turbine, and the generator is an integration of the function which each is expected to and does perform.

All these integrations drop into the background when one begins to think about using electricity for any particular purpose, as for propelling a motor, or lighting a light. Improvements in electric motors and in electric lights must be considered with reference to the natural imperatives, or mass-energy relationships, in the motor or the light; and it only confuses the engineer in his thinking to insist that he should carry in his mind the mass-energy relationships in the boiler and the turbine as he proceeds to envisage the potentialities of electricity as it may be applied to useful purposes.

There may be perception within instinct, as I think there is, but the potentialities within awareness and consciousness are so far beyond those within mere instinct, that it seems incongruous to study animals, even if they are emerging from instinct into consciousness, with the idea of getting much useful data on the potentialities of mentality within its own field. This is as unorthodox as experimenting with a water turbine, with the idea of getting data relative to the design of a steam turbine.

A steam turbine may be the immediate source of power which propels an electric generator in a power-plant; but that hardly means that the steam turbine can, or should be expected to reveal the full potentialities of the electrical energy that is being generated.

The body may be the only available power-plant to supply *mental* steam to a *mental* turbine which propels a perceptive generator in the mind of man. The body is

only a power-plant which utilizes some of the energy which is stored in the food that the body takes in to keep it alive and able to move. Everyone knows that the digestive apparatus of man can assimilate some things that grow, but not everything that grows.

### *Food for Thought*

Here we are primarily interested in what the mental apparatus of man can assimilate. What kinds of *mental food* can the mind of man digest without mental nausea, and ensuing mental disintegration? We have no figures, but probably the greatest mental disintegration rate is caused by *diffusion* which dissipates mental energy. Steam that has been *diffused* into the open air cannot propel a turbine.

Mental capacity has apparently been evolved through long centuries by a series of integrations. Therefore, mental disintegration may not necessarily be a sudden process; it may sometimes be a long, tortuous, and painful process. The distracted look on many faces today suggests that they may be going through, even now, the agonizing throes of a slow mental disintegration. There is a suggestion here that may some day prove to be more helpful in dealing with mental obsessions than the truncated impulsive approach advocated by Freud and his colleagues. Of course, we do not yet know what the pain relationships between a disintegrating mind and a living body may be. It is clearly not a case of merely physical decay.

We are here interested in *growing* mentally, and not in disintegrating mentally. What are the mental foods that can produce strong healthy thinking that can keep its own brain in order, and also push forward within an ever enlarging horizon within its mentality field without

bewildering hesitations? If we enlarge on the mentality chain, referred to some pages back, we seem to envisage a mental chain of a million links, extending forward through a million years. How else can we even partially integrate the scientific theory of evolution which postulates that the mental equipment of man has required millions of years of "natural selection" to reach its present capacity? On the theory that "all nature is kin," is it not reasonable to assume that continued selective integrations in the mind of man may yet reveal more clearly what his destined possibilities can be?

### *Imperatives*

Did not the Prophet have a premonition of a universal concept when he said: "Broad is the way that leadeth to destruction, and *narrow* is the path that leadeth to everlasting life?" We need change only a few words here to give us what appears to be a valid universal observation; broad is the way that leads to futility, and narrow is the path that leads to *achievement*. And we might add, this narrowness becomes narrower and narrower as we approach closer and closer to an optimum achievement.

Our mental engineer here proffers the observation that this world in which we live appears to have a great many possibilities, but the possibilities are by no means unlimited. He observes that everything which we attempt to do, whether in physical or in mentality engineering, seems to be subject to "imperatives;" that is, everything we do occurs within an assembly of *mass-energy relationships*. Everything we do or attempt to do is an activity; and achievement occurs within mass-energy relationships which must be conceived in the plural because the mass-energy relationships are changing within a continuum of time to accomplish any particular achievement



whether mental or physical. The significance of the time element in this plural concept will be more fully discussed later.

If the engineer wishes to make steel his choice of material is limited. If he wishes to make a particularly high grade of steel his choice of ingredients is even more rigorously circumscribed. If he wishes to make a steam engine, there are several ways he can do it; but if he wishes to obtain a maximum operating efficiency with an optimum use of materials, his range of choices is narrower. If he wishes to make an electric generator, his range of choices is even more restricted, both with reference to the selection of materials, and the arrangement of those materials.

In life, the mentality engineer observes that the same general law of *imperatives* seems to hold good. Plants appear to select particular ingredients out of the soil which makes each of them what it is. Animals can eat some things that grow, but each of them is restricted to a comparatively narrow range in the choice of its food. Man has acquired the capacity to assimilate a larger variety of foods than most other animals; but individuals are still subject to a number of allergies which do not disturb other human beings.

Our mental engineer observes that human beings in their mental processes appear to be subject to similar *imperatives*. A human being cannot *digest mentally* everything that his imagination might present to him. He must select the concepts relating to his mental processes with due regard for the natural mass-energy relationships which promote mental growth. If man wishes to attain his ultimate potentialities in mental achievement, he apparently must choose his concepts as carefully as he must choose the ingredients for a fine piece of steel.

If an engineer wishes to get a measure of the value of a particular grade of steel for a specific purpose, he may have to go through, or consult with others who have gone through, a long series of tests. The engineer may wish to know the chemical analysis, the resistance of corrosion, the hardening and tempering operations through which it was put, the resistance to concentrated impact, and then its yield point and ultimate strength under compression and tension. Even then a full integration of the value of that steel can only be obtained by a "life test" of that steel in service.

The suggestion above that the engineer "may have to go through, or consult with others who have gone through, a long series of tests," lays bare two of the mental outcroppings of a modern skepticized mind; first, the skeptic insists on deciding all mental questions for himself and this shuts off direct aid from others in the solution of all mental problems; second, it does violence to mental integrity, because it does not grant to others the same mental status that it claims for itself. In some measure this is theoretical, but in long range practice it usually reduces to some such limited mental perspective. The *measure* of the *validity*, which is within a skeptic's mind, is rated introspectively, notwithstanding his insistence that he is a logical realist who accepts nothing as true which is not integrated outside of his own mind.

If a robust youth, who has had no engineering training, should arbitrarily decide that he would not ride in an automobile until he built one himself; by almost unanimous consent, he would not be accredited with a very sane mental outlook. If this youth were a liberal skeptic, he might permit others to dump parts of an automobile, and other things, in his back yard, but he would insist on selecting and assembling those parts as

*he thinks* they should be. This would not be much more commendable. Thinking can hardly succeed effectively without cooperative-coordination with others, any more than can physical engineering.

### *Hit and Miss Thinking*

Probably our progress toward mental stability during the last half century would have been more rapid if we had had a few more engines and not so many monkeys in our psychological laboratories. One can sometimes get more information from a stranger than from the next of kin. At least, from an engine we might learn something about coordinating sequences. Too much of our modern thinking is of the "hit and miss" variety; we have a mental explosion, then, after decelerating through an interval of time, another explosion occurs. Some of my readers may recall the single cylinder gasoline engines that formerly were used to propel the hoists on construction jobs. These engines had what the engineer referred to as a "hit and miss" governor.

These engines also had a heavy flywheel to keep the engine spinning between "Full Charge" explosions; every psychological laboratory should have a small model of one of these engines to demonstrate the violent agitations and irregular production of power which such an engine exemplifies. Every student has an example, in his automobile engine, of what engineering could do, and did do, to obtain a smooth flow of power. Two things should be noted here, first, the number of cylinders was increased to six, eight or more; and second, the engine is "throttle" governed; usually by the driver's toe on the accelerator.

A not uncommon method of approaching thinking today is that it is a process of "exploding facts." If we can



judge from physical analogies including the atomic bomb, the conclusion appears to be that the smaller the fact the more violent the explosion. We are here interested in explosions of a lesser variety, however, which can be domesticated and made to serve the evolution of mentality in the mind of man. Here we shall need more "cylinders," that is, more minds to coordinate with each other in an effort to produce the mental capacity required to climb the hills ahead. Also, we shall want to know how to conserve that capacity so as to discontinue the numbing of our brains by violent psychic explosions.

For a timely example, instead of asking, "Am I my brother's keeper?" Why not ask, "Am I my brother's helper?" Or, do my brothers help me? If not, why not? Do you believe in evolution? Or, is it not more to the point to ask, do you believe in an "eye for an eye and a tooth for a tooth?" Do you believe that evolution through a cumulative process of successive integrations has produced whatever capacity for perception we now have? Do you believe that through further cumulative integrations this perceptive capacity can be made even more effective?

### *The "Breath" of Thinking*

Beliefs have a subtle and intrinsic relationship to all thinking. Opinions and convictions about beliefs have assumed such varied patterns within the modern mental kaleidoscope that a comprehensive analysis of the function of beliefs will be postponed until later. The following brief outline of some functional relationships within the thinking process is presented as being suggestive.

Concepts are the molecules of oxygen which are carried within an atmosphere of beliefs that must be continually inhaled and exhaled during the process of think-

ing. These molecules of belief are something more than a fanciful notion projected from a detached imagination. These molecules of belief must have intrinsic properties which are capable of initiating and sustaining the "fires of hope" within a mentality field. This sustained hopefulness must be continued by the "breathing" of concepts until a new or enlarged comprehension emerges within a mentality field.

Perception is basic, in any process of thinking, and it is only after we have perceived differences with sufficient clearness to differentiate them from each other that the concept makes its debut. The concept is a mental integration in the nature of a mental "organ and function" all in one. We refer to the lungs as the organ of the body which accomplishes breathing of air that provides oxygen for burning the fuel that sustains the body. By analogy, concepts are the "breath" of mental activity which must be "inhaled and exhaled" continually as long as active thinking continues. In this sense, concepts become *the organ and the function* of "breathing" life into mentality.

On this basis every concept is formed in the mental atmosphere of true or false, better or worse. The concept is peculiarly a mental construct, and whatever of truth or selection may have been in the functional formulation of the concept must remain in that concept, if any ensuing mental deductions are to be valid. As long as this validating function remains rigorously intact in the concept, the concept can be used and judged on its own merits independent of the impulses, or initiating causes, which may have set off the mental chain reaction that resulted in the formulation of that concept.

A field of mentality may be weak when one begins to contemplate and to concentrate on a particular mental

problem, but the intensity of that field may be increased as the "breathings" of perception increase to a point where they are adequate to integrate the problem in hand. This is only what dynamic faith has accomplished now and again in the past. However one may express it, perception emerging into comprehension is the originating source of a creative thought. The value of mental integration was pointed out earlier with reference to one's bank account. Integration is equally, or even more valuable with reference to one's "bank" of mental concepts. What is the purchasing power of your psychic concepts in a mental cooperative exchange?

### *The Apple in the Tree*

An apple in a tree is an excellent example of a cumulative integration, or, of integration through *growth*. How are the materials appropriate to the making of an apple *selected* out of the ground around the roots of the tree? How does the sap transport those ingredients up into the tree and deposit them in the apple? And, is the sun the "integration constant" which energizes the assembly of those ingredients into an apple? Did Nature engineer the construction of the apple, or did the apple engineer its own construction? There seems to be directive perception here, either on the part of Nature or on the part of the apple; or, have we got here a demonstration of a genuine democratic process operating in the physical world, where each ingredient is willing to co-operate with all of the others to produce a specific result?

In whatever manner we approach the appearance of the apple in the tree it seems to be a forecast of mentality in the making. If this is true, why then does the skeptic assume that, in his mental processes, he has a right



to be *autocratic*, even though Nature is democratic in the organization of its organisms right up to the perception of consciousness? In other words, as the skeptic steps over the threshold at the entrance to consciousness, why does he assume the privilege of proclaiming himself a free ego, irresponsible to other egos, and even to mother Nature who gave him whatever mentality he may have?

### *Apples of Intelligence*

Intelligence is only an apple on a tree of mentality. There are many kinds of intelligence, as well as many kinds of apples. Perception is the soil out of which the varieties of intelligence appear, just as the earth is the soil out of which apples of various varieties appear.

There are many fruitbearing shrubs and trees in the fields of mentality; for example, sour grapes as well as peaches; there is also much leafy foliage, much of which we could well dispense with.

Approached in this way, a fully integrated idea grows, by a process that is irreversible. An idea may disintegrate, through a process that is quite other than the process by which it grew. Everyone knows that an apple exposed to the elements in the garden will not last long after it falls to the ground. It decays quickly. Of course, a seed from that apple may fall into fertile soil and in due season bring forth a tree, which brings forth many apples.

If one permits his thoughts to linger in a garden of mentality he begins to perceive that "*the tree of Wisdom*" should be cultivated in the very center of that garden.

On this basis, criticism may be thought of as a pruning hook, which may be used to cut off useless branches.

If this pruning hook is used wisely, at proper seasons of the year, this tree may be made to increase the abundance and flavor of its fruit. If this pruning hook is used unwisely, as at the wrong season, particularly when the tree is growing most rapidly, the tree may be killed; if used ignorantly, the tree may produce only leaves and no fruit. Remember also, a pruning hook is only a tool, which never produced a tree, much less a fruit, directly by virtue of its own inherent qualities. This statement seems trite when made in this form. But from the manner in which many persons hurl criticism at others today, it appears as if they were trying to induce good thinking by the use of criticism. Why don't they try using their own thinking capacity constructively in an effort to produce some apples of intelligence?

### *Theology, Philosophy or What?*

In all three of the major schools of learning in the world today, philosophy, religion, and science, it has been almost an inviolable tradition to start any thought of thinking with a dogmatic assumption of an unbridgeable chasm between the mental and the physical.

In most of our abstruse philosophies this unbridgeableness has been stoutly defended by logical arguments which were cleverly conceived, but not always elucidating to the average person, and not entirely convincing to a mentality engineer.

Most religions conceive their theologies on the basis of an unbridgeable gap between the spiritual and the material.

Science, as already pointed out, has made no organized attempt to outline a theology of its own; nor has it made any organized attempt to show how objective mentality might emerge out of physical phenomena.

Will it be possible for those scientists, who insist on maintaining their mental isolation, to continue much longer their mental meanderings like floundering fish out of water?

From the point of view of mentality engineering Theology and Philosophy may be outlined somewhat as follows:

Theology is a mental norm or norms expressed in concepts which have some validity and sufficient appeal to serve as a dominating guide in the lives of many individuals. Theology recognizes its inability to explain everything, and contents itself with explaining enough to hold the allegiance of many minds.

Philosophy, on the other hand, is primarily concerned with explanations. Philosophy is more detached in its observations, and often less inclusive in its concepts. There is a common meeting ground between philosophy and theology, however, in which area many people use these two words almost interchangeably; as when one speaks of his *philosophy of life*, which is about the same in content as a theology rather incompletely outlined.

Inasmuch as the little that man knows is so small as compared with the vast unknown, it would appear that the theological approach provides the more practical norms for guiding the activities of growing mentalities within a social organization. Theology is more like engineering, in that it insists on including everything that is necessary to produce a complete integration, and is then willing to abide by that verdict, irrespective of some technical detail which a particular individual might question. We might also point out in passing that science is far more theological in its formal mental procedures than many scientifically indoctrinated minds are willing to concede. This is not strange inasmuch as theo-



logical thinking was in the foreground of thinking for centuries before modern science made its debut.

Mentality engineering is not particularly concerned with the dividing of thinking into "schools of thought" or "bodies of doctrine." Mentality engineering is more directly concerned with methods of procedure within mentality fields, largely irrespective of old categories into which specialized approaches to thinking may have been presented.

Concentration of mental effort along this line will discount negative approaches and will accord to mentality its rightful place at the very top of the evolutionary ladder on this earth. When we try to think about evolution in its broader aspects, and in terms of mass-energy relationships, an idea of different "levels" becomes almost indispensable to the presentation of a clear outline. Integrations at different levels might be classified as either static or dynamic, but are here referred to as dormant or "fetching" integrations; to use a word which was introduced into this thesis earlier.

A *dormant* species is one which is satisfied to continually reproduce its kind without manifesting any impulse to evolve into something higher; as in a colony of ants. A *fetching individual* is an integration which is not satisfied to remain forever an unambitious entity; he has an impulse or ambition to become something more than he already is. The term "fetching" suggests not only the willingness to become something more, but implies a hand in the selection of that which can be integrated with what he already is to make him something more; that is, it implies the going after and "fetching" that which is necessary to make him something more.

The idea of that which is being integrated having something to do with the integration of itself into some-

thing more than it was a moment ago certainly has not been stressed in scientific discussions of evolution. Science discusses "organs" initially from the standpoint of their function, then primarily from the standpoint of discovering "facts," which are imaginatively supposed to reveal how that organ performs its functions. This last statement is in the form of a generality, but science in the main eschews generalities, particularly inquiry into functional generalities, because the pursuit of functions or purposes would soon require the statement of a theory, or theology, or at least a postulate about the significance of mentality within this universe in which we live.

### *Broadening the "Mentality Spectrum"*

The thought here is to compare the act of sensing or perceiving with the act of seeing. In a light spectrum we refer to the range of *visible* light and then proceed toward and into an infra-red range of physical wave activity beyond one end of the light spectrum, and toward and into an ultra-violet range of physical wave activity beyond the light spectrum at its other end.

By an analogous comparison with a light spectrum an infra-conceptive range in a "mentality spectrum" includes those conceptual mass-energy relationships which appear below the level of immediate perception, or in modern parlance, below and beyond the reach of the five senses. An ultra-conceptive range in a mentality spectrum includes those conceptual mass-energy relationships which appear above the level of immediate perception, that is, above and beyond the reach of the five senses.

This ultra-conceptive range includes all those activities within a mentality field which require a high order of conceptualization to increase the perceptive voltage

to a point where that voltage can be released in a flash of insight. Information and value judgments in this ultra-conceptive range can *only* be arrived at by designing and testing mental concepts within its own field of conceptualization. Within this field faith comes to its own. Such conceptualizing can only be successful within an atmosphere of mentality *comprehensions* which are unknown within a field of speculative imaginings.

In a broader look at that mentality spectrum which embraces the full range of perceptive possibilities, the *unaided mental eye* of man today is capable of perceiving *only* what is in the middle range of this spectrum. Just as in the spectrum of light the physical eye perceives only those wave lengths which lie within the range bounded by red at one end and violet at the other. Science now recognizes infra-red rays and ultra-violet rays beyond the boundary lines of visible light. Science has gained valuable information by investigating these infra-red and ultra-violet fields of physical activity which lie outside the immediate vision of man's conscious seeing eye.

During the historic ages, through which human beings have lived, consciousness has been broadened in the mentality spectrum in both directions, toward and into an infra-conceptive range and toward and into an ultra-conceptive range. A widening in each direction has proceeded through and from the use of *concepts*. Through the use of conceptive thinking man can conceive more than he can sense or perceive directly by his five senses. In engineering terminology, man can boost his perceptive voltage to a point where it reveals to him more than he was able to perceive before.

This is not saying that man can lift himself by his own mental "boot straps" any more than a man lifts himself



by his own physical boot straps when he is flying an aeroplane. The ability to raise his own perceptive voltage is the result of an engineering arrangement of *concepts* within mass-energy relationships which produces an energy capable of doing just that. In other words, thinking is capable of enlarging its own possibilities within an ultra-conceptive range of its mentality spectrum as well as enlarging possibilities within an infra-conceptive range.

Man requires a considerable array of precision engineering equipment in the form of cyclotrons, telescopes, microscopes and many other delicate measuring instruments in order to reveal to him the conceptual mass-energy relationships that may be comprehended within an infra-conceptive range of the mentality spectrum.

The musing of scientists within the infra-conceptive range of the mentality spectrum has been primarily concerned with mass and the pursuit of mass as somehow containing the substantial essence of things. First, they chased the molecule, then the atom, then the electron, and now the proton or some other minute division of matter as being the only imaginative goal which could possibly be interpreted as an essential basis for understanding whatever we might understand about this universe in which we live.

### *The Significance of Time*

Science tries to deal with things primarily in their space relationships, but must also give some thought to the time relationships within its own field. On the contrary, religion attempts to deal more particularly with time relationships, but must also give some consideration to space relationships.

In the consideration of time, it is important to recall

that popular concepts about time relate primarily to those aspects of time which science has chosen to emphasize. In about the third decade of the present century, when science was beginning to awaken to the recognition of some of its own limitations, which it had previously ignored, I recall distinctly one phrase which was used at that time, namely, "There is no such thing as time." This was largely a propagandizing statement, though it may not have been consciously recognized as such, intended to keep before the public mind an exaggerated estimate of the importance of keeping thinking within the range of scientific concepts.

The scientific mind has busied itself with the contemplation of space, and the existence of things within space. It has tended to ignore time, as far as possible; at least to exclude time from its sober imaginings about the *existence* of thinking which has one of its dimensions in *time*. The phrase, "there is no such thing as time," expressed a desire to get rid of the common concept of time. By ignoring the common concept of time, it was possible to *defer* the consideration of the significance of *time* in everyday mental activities.

The modern emphasis on "the conquering of space" is another illustration of the extreme devotion to considerations of space in the field of "scientific engineering." The directing of the child's attention to the building of "space ships" detracts his mind from thinking about time in relation to his own life. When and if the scientific engineers succeed in reaching the moon, they may have succeeded in "conquering" a very *small bit* of space but they will search in vain there for any evidence of the significance of *the time* that the engineers required to design and construct the mechanisms designed to reach the moon.

Another indication of the ignoring of the significance of time, "in our time," is the feverish impulsiveness in which some modern philosophers are attempting to reinstate time in the mind of man. These philosophers include such men as Jaspers, Heidegger, Marcel, Berdyaev, etc. Trends within some of these philosophies will be reviewed briefly in Chapter V.

These men feel with an ardent urgency that something has been left out of our mental contemplation during our scientific era. They emphasize ontology in the sense of bringing it into the very concept of being. In other words, life is not what it *is* but life is what it *is becoming*. That is, they are trying to bring back into the consciousness of man that he lives *in time* quite as much, or perhaps more essentially than he lives in space. Life cannot be divorced from time. There are no divorce courts in the various "states" of time. When man ceases to exist *in time* he is dead.

The use of the word exist in the last sentence above, suggests the basis, both for the enthusiastic pursuit of existentialism by some philosophers, and for the confusion of thought which these philosophers exhibit in the discussion of existentialism. The interpretations which have been placed on the word "exist" by the imagination of our scientists, through half a century and more, have so indelibly stamped on the concept of *exist* the "made in science" label, that mentalities of today can hardly conceive of the word exist as referring to anything more than what can be identified within a present moment. In other words, the thought of existence has been divorced from time and it will require some *time* to impress upon the minds of men that that separation was only a delusion based on fanciful imaginings.

Of course the scientists have given some considera-



tion to time in their own fields of endeavor. Engineering has continued to produce better and better clocks and watches, and recording devices for producing graphs which indicate what is happening within a duration of time. Engineering has produced time-pieces that can record split seconds. These are used to record *elapsed time* in all sorts of races; and the tempo of life has been speeded up during our scientific era to the point where a premium is placed on speed as if *time* were something *to get rid of* as quickly as possible; and then, man spends the leisure time which he has saved by reason of his hurrying, wondering and planning how he can spend that "saved" *time* without being bored stiff.

All this hustle and bustle does not leave the human individual much time to think. This is exactly the point we are trying to make here. Our scientific era has been *planned* so as not to leave much time for thinking. The memory storage bin within an individual mentality is crammed with *facts* as fast as possible, and then that individual is expected to tumble those facts around with as great rapidity as his imagination can muster, and to come up with an assemblage of facts *suited* to the performance of an imaginary task as quickly as possible.

But, thinking requires *time* as one of its dimensions. Organized science has not spent much time thinking about this time-phase of thinking. Scientists have used whatever time was needed to think about their theorems and postulates within an infra-conceptive range of a mentality spectrum; but inasmuch as the concentration there was primarily on *things*, rather than on *thinking*, an imaginative postulate was improvised which permitted them to ignore the time factor in perception. This permitted organized science to skepticize its publications. This imaginative thinking extended to an *unbelief*

in the existence of an ultra-conceptive range in a mentality spectrum. Having imagined that his own thinking was imaginary he could easily imagine that religious thinking was imaginary. In the infra-conceptive range within the mentality spectrum he did recognize that his own thinking was not wholly imaginary; his thinking there did have something constructive in it, and he sub-consciously or otherwise reached the conclusion that since imagination is constructive at one end and fanciful at the other, any thinking outside of his *chosen method* of thinking must be at the fanciful end of imagination.

Organized science did not do enough thinking about the common perceptive denominator, which lies at the basis of all thinking, to cogently associate itself with other schools of learning. As light traverses the heavens and is the primary means by which we know that more than one star exists in the heavens, so perception is the primary means by which one mentality can know that another mentality exists within this universe. It is only through perception that one can begin to measure the distance between his own mind and another, or vice versa, the distance between other minds and his own.

Skeptical human beings have acquired the capacity of being measurably conscious of some things, but this band of consciousness is exceedingly *restricted* at the present time. It is only appreciably wider than an instructed animal consciousness.

Organized science has attained such progress as it has made through faithful thinking by concentrating on the potentialities within its own fields of endeavor. It has refrained from an equal devotion of time to concentration on, and contemplation of, the development of mental and spiritual possibilities. This lack of equal endeavor has intensified its skeptical misgivings. These skeptical

misgivings have infected imaginative minds to the point of rendering them almost incapable of faithful thinking throughout any considerable length of time. Imagination is wholly unreliable as a guide for conducting mentalities along the path of the eternal toward their ultimate capabilities within *time*.

Is it not about time for human beings to discontinue thinking that they are thinking when they are not; time to begin to emphasize the indispensable role of *time* in all thinking, and time to begin to teach all children, at least, to begin to think about the functions of faithful thinking?

Paul E. Sabine quotes Einstein as saying: \* "All knowledge about reality begins with experience and terminates in it." What we are interested in here is the lapse of time between one experience and another. What does mentality fill this lapse of time with? How does mentality *fill* this lapse of time? The essence of these queries will be further inquired into later.

Sabine, after some further discussion of the significance of the statement of Einstein quoted above, gives us this paragraph:

"Einstein reduced the physical facts of gravitation and the electromagnetic field to a matter of the geometry of four-dimensional space-time. In so doing he took an important step toward a complete synthesis between the purely mental processes of mathematical thinking and the relatedness that is the structure of the physical world. Certainly a multi-dimensional geometry is a creature of the mind, and the calculus of imaginaries cannot be conceived to be anything but a pure creation of the intellect. And yet we find that with these tools Einstein was able to fashion a theoretical framework in which the facts of gravitation and electromagnetism fit as parts of a mathematical system."

\* "Atoms, Men and God," by Paul E. Sabine, Philosophical Library, New York, 1953.



This paragraph is here quoted for several particular reasons. “. . . he (Einstein) took an important step toward a complete synthesis between the purely mental processes of mathematical thinking and the relatedness that is the structure of the physical world.” Note that this sentence deals with *a synthesis*, not an integration, “between the purely mental processes of mathematical thinking and the relatedness that is the structure of the physical world.” No attempt is made to integrate purely mental processes with the structure of the physical world.

Sabine continues, “Certainly a multi-dimensional geometry is a creature of the mind, and the calculus of imaginaries cannot be conceived to be anything but a pure creation of intellect.” This is a clear cut statement of the mind of man working within the infra-conceptive range of its mentality spectrum. In other words, mind devoting its activity to conceptual elucidations which are not within the everyday range of perceptual observation.

A little contemplation of the word “imaginaries” in this setting should give to the reader some insight into the interpretation of *the imagination* as conceived in its scientific setting. It is a pure “creation of intellect.” It is intellect devoted to mathematical thinking. Sabine concludes his paragraph with, “And yet we find that with these tools Einstein was able to fashion a theoretical framework in which the facts of gravitation and electromagnetism fit as parts of a mathematical system.”

Is it any wonder that many scientists conclude that, “When we know a mathematical law of nature we know as much as can be known at all?” This sentence, being interpreted, means that, if we consider nothing but the mathematical aspects of nature we should expect to per-

ceive nothing but those aspects. When the constructive end of imagination is used to develop a "mathematical system" it is all right because that imagination will be checked at every turn by a mathematical formula. As already pointed out, imagination as a detached concept, without even an implied association with mental integrity, is worse than useless in the interpretation of living phenomena because such an imagination can be applied to destructive tactics.

The concept of imagination is wholly devoid of any time content. Of course the imagination may attempt to deal with all sorts of problems within time and concerning time; but detached imagination does not have any concept of itself proceeding out of the past, through the present, and extending into the future. Its deductions are *here and now* imaginings which do not conceive of themselves as having any considerable existence in time and therefore have no direct responsibility toward time.

On the other hand, faith is a concept of being grounded or having its very roots in *time*. We have repeatedly referred to faith in its most dynamic aspect as related to creative thinking; but faith, when it is genuine, even when it may appear to be almost dormant, still has the quality within itself of clinging to something which had value in the past and bringing that something forward in an attempt to guide and to gain some insight into what *can be* in the future. In short, faith is that activity within a mentality field which *carries its possessor forward from one experience to another*. The skeptic, when depending solely on his imagination, has no mental quality which is capable of carrying him forward from one experience to the next, except doubtful beliefs.

Faith is a highway on which mentality travels from the past toward the future. When there is no mental

highway leading toward the future, or when that mental highway is badly in need of repair, mental progress is necessarily slow. There may be several highways leading toward the future but the difficulty today is that our modern highways have their paved surfaces pretty badly broken up by the flat wheels of skepticism which are bumping their way over them.

In more cogent mental concepts the process of thinking requires the carrying forward of many mentality requirements from the past through the present and into the future. This, at least, includes the carrying forward of integrated mass-energy relationships which are capable of initiating perception at some future time. After a child arrives with his initial equipment, he must receive instruction in the techniques that are necessary for generating voltages of perception within his mentality field. This involves the use of concepts, and a fidelity in the use of those concepts, within a range of natural imperatives that can occur only within a mentality field.

These natural imperatives are less restricting than are the imperatives which one must comply with in his physical body. The *mind of man* provides for a larger arena of activity than he can attain through bodily activity alone, but this larger range of activities can only be attained by acting within a natural range of mass-energy relationships. To attempt to go counter to these imperatives is to destroy future mental possibilities just as diseases in the body destroy its functioning.

This brings us squarely up against the problem of good and evil. Enlarged freedom means enlarged responsibilities. All the problems of choice, will-power and fair play, enter into this arena with an insistence for their solution which cannot be ignored in any civilized society. We do not intend to enter into a discussion of



all these things at this point. What we do wish to emphasize here is that in the solution of all these problems the concept of faith as a vehicle for keeping always before the mind somewhat of the values which are being carried forward from the past, into the present, and on into the future, cannot be ignored.

This fidelity of mind which respects the achievements of the past and endeavors to improve upon those achievements in the future is indispensable to an increase in the potentialities within a mentality field. Call it *faith*, or what you will, something of this integrity of perception must be present in all genuine thinking. The indulgence in imaginative speculations which pass lightly over these sacred functions of mentality can only delay the coming of a better day.

### *Imagination or Faith?*

The well known aphorism, "As a man thinketh so is he," is accredited today by many people as being passably true, but the significance of a negative version of this statement is often ignored. As a man thinketh *not* so is he *not*. When a man does not think he surrenders his birthright as a human being because mental activity, in one form or another, is the hallmark of his distinctiveness as compared with the mere animal that was or is in him.

Negative thinking seems to have acquired a dictatorial quality, within certain nebulous ideas about thinking, that is misleading many minds today. Every thought that acquires genuine significance in the process of thinking must depend on the validity of the beliefs which support the thought. It is no more possible to think in terms of *unbelief* than it is to fly an airplane without an engine in it. One may have what appears to

be a perfect example of a good airplane, but energy is required to make that plane fly; or one may even have an engine in his plane, connected to what looks something like a propeller but which does not have the positive "rake" required in its blades necessary to take a "bite" on the air to actually move that plane forward or backward. With such a "club propeller" one might spin his engine and develop enough power to propel his plane if he had a properly designed propeller in it instead of this imaginary propeller. Under such conditions one could make a terrific noise by beating the air with this imaginary propeller but his plane would not move. Or again, if the "rake" is in that direction which would tend to move the plane backward as the engine speeds up, then the pilot might move his plane backwards over the field with a considerable show of power but his plane still would not leave the ground.

In this mechanical illustration we have an excellent example of the futility of negative thinking, because imaginary thinking which seems to assume that one may somehow acquire enough mental momentum by moving in a negative direction to accelerate the process of thinking in a positive direction, is no more possible than is its mechanical prototype in the comparison above. Also, an imaginary concept which does not take a "bite" on the continuum of time in which it moves, sufficient to produce positive "pull," cannot produce a forward mental movement. This illustrates the utter futility of imaginary concepts, because the concepts which one uses in the formulation of his thinking must have sufficient validity to take some "bite" on the continuum of time in which that thought moves; otherwise one may simply be "beating the air" with his imaginary concepts.

This presents a background against which the dis-

tinctions between imagination and genuine faith may be projected in order to give some mental insight into what that difference is, or ought to be. Belief may provide both power and "bite" enough within a mental atmosphere to move one gently across a field of level mentality, but an increase in "bite" or in power, or in both is necessary to "take off" into the supporting "air of time." This increase in "bite" or power requires an increment in belief or power which lifts one free from the plane on which he moved before. This increment in belief is attained through dynamic faith. The kind of belief within which this increment is only potentially present may be characterized, and has often been so characterized through the centuries, by the simple word, faith.

One other observation which might be injected here is that even though the "bite" of a propeller and the size of an engine may be sufficient to lift a plane off the ground, the fuel "knocks" so badly that the full capacity of the engine is not available, therefore, the plane does not rise from the ground. This suggests again the futility of controversy as a mental procedure; in which mental energy expends itself in violent impingements on its own restricting walls without releasing enough faithful energy to produce an effective forward "pull."

The above mechanical illustrations are apt to the extent that they may help to give a boost in the direction of effective concentration on, and contemplation of mass-energy relationships within the ultra-conceptive range of the mentality spectrum adequate to produce a significant achievement. Imaginary belief may be capable of propelling some activity on a mental plane on which one is already moving. However, added intensity of belief, which is present in the form of added perception within *genuine faith*, is necessary for lifting one to the next plane above.



## *The Supreme Quest*

The supreme quest in all thinking is to become creative. The goal in all thinking is creative thinking; but how many "foothills" does one have to climb over before this mountain peak comes into view? And then, how does one find a trail leading to the summit of this mountain? In other words, how many partial integrations does one have to make, before he comes upon an integrative thought which can truly be said to be creative?

Life itself is a questing for something more or other than it already is. In its supreme essence life is not what *it is*, but what *it is becoming*. The artist puts into his picture something which he had never seen before; the musician records a melody which he never heard before; the engineer discovers something which he had never thought of before; the prophet speaks in words of wisdom which he had never spoken before.

This all seems natural enough; but when one tries to express in words how these things happen, his thinking may become a little diffused. These unsolved mysteries would not become quite so snarled if human individuals exercised a little more sovereignty over their mental integrity. They are prone to appear more certain about details than their comprehension of wisdom can validate. Man tends to become superstitious, and then to ignore evidence which might, at least partially, controvert his superstition.

The older a school of learning has become, the longer the opportunity for tying superstitions to it has existed. Science is a comparatively new school of learning, and yet it seems to have a few superstitions tied to it by a number of its proponents. The idea that science is *amoral* in its essential nature, probably grew up without much thinking, and has been propagated through all

these years by very little more thinking. The scientist insists on strict mental integrity in his laboratory. It is only when a skeptical scientist leaves the laboratory, and mingles in society that he exercises the privilege of relaxing his mental integrity. Does it not then appear as if science may be moral enough, but it is only some scientists who are indifferent toward the natural imperatives within moral conduct?

The various attitudes of mind which have resulted from scientific skepticizing have often assumed a sufficiently synthesized form so that it would seem quite appropriate to refer to these as superstitions. This synthesizing has bred within loosely organized minds a diversity of *beliefs* in *unbelief*, which might be rated as superstitions, inasmuch as they are functioning in a mental atmosphere that does not question their validity. The next two Chapters will discuss Modern Skepticizing and Modern Skepticized Thinking in relation to the potency of skepticisms in the breeding of mental confusions.

### CHAPTER III

## MODERN SKEPTICIZING

### *Honest Doubts*

In the frame-work in which thoughts were cast in the early part of the present century a concept of an honest doubt may have inspired some earnest thinking along the line of eliminating traditional concepts which had outlived their usefulness. Honest doubts were not so bad as long as honest thinking was pursued in the direction of removing those doubts. Before long, however, the word honest was dropped, and the thinking was often discontinued along the line that provoked a particular doubt.

The sequence of events was somewhat as follows: the skeptic was one who doubted the Scriptures, and he usually attempted to substantiate his doubts by referring to scientific evidence; then the skeptic began to doubt religion itself, because his chosen scientific studies did not directly substantiate all the concepts in religion; next he began to doubt intellectual deductions because they did not always agree with his scientific deductions. Thus, the skeptic developed the habit of not meeting his doubts honestly in the field in which he met them by escaping into some other field where his doubts were less in substance, and required less mental effort on his part to comprehend the limited subject matter being presented.



By maintaining his close association with science the skeptic acquired a reputation for accomplishments which he did nothing to attain. When the engineer or the scientist enters his laboratory he leaves skepticism outside: he goes to work like any other faithful servant to find out, if he can, how things are.

The alliance of skepticism with science, however, was not wholly unprofitable to science. On the propaganda level skepticism proved to be very helpful to science; first, in keeping the other schools of learning in the hinterland of consciousness by the methods already referred to; and second, by playing up the *positive* nature of the advantages obtained through the applied sciences, particularly engineering, as compared with the progress made by any other school of learning in an equal length of time in the past. Under these conditions, was it not obviously expedient to approach things from every possible angle to see how much data could be collected about things, without seriously endeavoring to explain how the mentalities, which were being used to collect all this material, might have been evolved out of physical phenomena? This then, is the introduction to modern skepticizing.

### *The Sham Reality of Skepticism*

To begin with a dramatic flair, one might say that skepticism is an imaginary monster which thrives on the immediacy of the credulity nurtured within its own self-righteous ego. The word immediacy is here appropriately used because the credulity on which the ego feeds is in the nature of an antecedent which is so immediate that the skeptic does not question the credulity of expecting something to arise out of nothing until after he has already bypassed the concept of skepticism. The

skeptic does not ask about the logic of his own position until such mentality as he may have is already searching beyond the mental barrier of *unbelief*, which a moment ago he considered as having some constructive possibilities.

Or, being a little more conventional in our approach, skepticism is only a mental attitude or imaginary shadow which is placed before the seeing eye of mentality. This shadow may be imagined to be more opaque at times than at other times, but the degree of transparency is due to the perceptive candle-power that is projected against it rather than to any change in the density of the shadow which intervenes between the mental eye and the object which that eye is endeavoring to see in clear outline. The obscuring shadow of skepticism must be withdrawn before an unobstructed mental perception is possible.

Ontological engineering is the science of finding out how to transform or convert one thing into something else; and almost invariably is concerned with how to make that something else better than the one or two other things which it is designed to replace. A competent engineer knows that perpetual motion is impossible and he is willing to pay something in return for whatever he achieves. Long before Einstein wrote his conservation equation relating to the concurrent conversion of mass into energy and energy into mass, the engineer observed an apparent conversion from mass into energy, as for example, in burning a lump of coal under a boiler, and he proceeded to harness this energy to the purpose of doing useful work for mankind. The engineer continues to use the energy which is released by the transformation of one form of mass into another and to use this energy for the movement of various forms of mass.

The mentality engineer must endeavor to achieve through some such analogous procedure a utilization of the energy manifested in mental activities.

Referring again to the statement above relative to a self-righteous ego, I can imagine that a particular skeptic, who may have a little sense of pride, might object to that statement in the setting in which it is placed and ask, how come? He might swallow his pride for a few moments and insist that he does not think of himself as being self-righteous but would continue to point out that he thinks he is as good as anybody else, besides he does not see how anyone can *prove* that righteousness exists at all. He is a little skeptical about the mental integrity of his fellow-men and does not see that under such circumstances any standard of righteousness can be established. Sometimes he is a little skeptical about his own righteousness because he cannot see that it has improved much during his lifetime. Also, if the mental integrity of human individuals is not quite dependable how can one pass on from one generation to the next any ideas which would tend to build up a dependable concept of what righteousness might be. The skeptic is not necessarily a solipsist but, nevertheless, he does not see how any reliable standard for righteousness can be evolved out of such uncertainties. He does not see how he can be accused of being self-righteous just because he insists that he is not willing to take suggestions from anyone else on that subject.

Skepticism is more in the nature of an attitude of mind rather than a mental process of any kind. Skepticism inhibits thinking. Of course, a skeptical person may engage in some positive thinking but when he does he is exercising a hope and a belief that thinking may carry him forward beyond where he is or has been, and it is



the positive nature of the hope which he harbors and the belief which he acts upon that carries him forward. It is not the skepticizing resistance to learning which he vaguely imagines may have something to do with his positive thinking, but the creative quality of the hopes and the beliefs which operate during his saner moments that carry him forward, if and when he moves forward.

We are living in an age of unbelief, in the sense of an absence of belief, or disbelief, in the sense of resistance to believing what another believes. It is this unbelief which is so devastating in the fields of imaginative mental procedures today. Many people refer to a lack of belief in a manner which seems to imply that they think such a *minus concept* is the only "belief" worth harboring.

Skepticism as unbelief may be a bland indifference toward mental effort, or the mere ignoring of serious thinking relative to anything which one does not, for the moment, wish to think about. Skepticism as unbelief may even be more insidious in its mental consequences, in that it implies something in the nature of mentality engineering insofar as process is concerned, but is in reality the antithesis of mentality engineering because it harbors a belief in unbelief, whereas all engineering is based on the fundamental concept that something cannot be had for nothing. In other words, the engineer must discover those things which will produce a positive result and he does not get ahead until he puts together those things which will produce such a result. In mentality engineering, as in physical engineering, "perpetual motion" is not possible,—energy is required to do work either mental or physical.

The person who leans heavily on his disbeliefs usually has that type of mentality which waits to be shown, and

rather prides himself on being "from Missouri," inferring that he must be shown. The person who approaches thinking from this attitude will never get very far in thinking about thinking because thinking when it is genuine must be done by the first person singular.

Nevertheless, mental deductions must have the suggestion of a common denomination in them; and must possess a validity which springs from the essential content of the thought itself, irrespective of the person who thinks it. This is akin to saying that an electric current has an essential content which is irrespective of the particular generator which may have produced it. The elemental nature of perception, in any field of thought has been repeatedly referred to, and will be emphasized again and again as this thesis proceeds.

The emphasis here is on the mischievous nature of *disbelief* when it acquires the status of an *omnipresent belief*. Many a person today would not be quite willing to admit that he places much confidence in doubt or merely unbelief, but he rather prides himself on some of the things he passionately disbelieves. This giving of credence to disbelief is largely a cumulative result of modern skepticizing, wherein detached imaginary concepts have assumed a probability status based on a statistical deduction from recorded or imaginary *errors* which may have occurred in the past.

### *Skepticizing the Public Mind*

Modern skepticizing is that process by which a mind is imbued with skepticism to such a point, or to such a degree that that mind loses initiative relative to improving itself. In other words, that mind loses its natural urge to evolve into anything better than that which it already is. A hill of ants is its prototype in physical evolution.

When a mind is skepticized and is not continually galvanized by outside stimulants that mind may easily become listless, perverse, or even neurotic.

When one becomes fully saturated with skepticism he becomes an agnostic,—a professor of ignorance; his mental attitude becomes completely obtuse, which renders intrinsically mental achievements impossible. Of course, an agnostic might use his imagination in an effort to imagine that he might get somewhere, and then use that same imagination to prove that he did not get anywhere. This seems a bit ridiculous when stated that way, and yet, many modern minds act as if they thought it was a sufficient excuse for them not to try to think, when they are afraid that they do not have sufficient mentality to make any progress along a particular line of inquiry; but they may be willing to venture the opinion that they do not believe that anyone else has either, and then back this up with a positive refusal to listen to any exposition of how such an inquiry might be started.

The skepticizing of the public mind reached an all time high as we approached the mid-point of the present century. The amount of skepticism which a human society can withstand without becoming intolerably chaotic is limited. But this limit is probably not a fixed quantity. If our society had not been bolstered and cajoled by steady and unbroken engineering progress an intolerable saturation would presumably have been reached earlier. The production of engineering novelties can hardly continue at the rate which the last half-century has exhibited. As mechanical contraptions, which can serve the needs of man, approach their saturation point, it may be just as well for man to turn his



attention in the direction of exploring the larger potentialities of his mental equipment.

### *Religious Skepticizing*

The skeptic's mental processes are such that he cannot give allegiance to God because those who profess to give allegiance to Him, cannot define God in terms that the skeptic can understand. Then the skeptic turns a mental somersault and gives his own allegiance to his own imagination which he does not pretend to define, either to himself or to anybody else. Of course, the skeptic would venture far enough to say that imagination is factual at one end and fantastic at the other; but he does not bother his head about what lies between these ends. When the skeptic tries to think in terms of this imagination it is not always clear, to an outsider which end of this imagination he is trying to use.

Many religious skeptics appear to think that they are more clever at skepticizing than their scientific brethren; at least they do occasionally try to improve their thinking about thinking. But, skepticizing is a blanking-out process and it is only a question of how much, or what portion, of the mind has been blanked-out. Every increment of faith or truth has a mental *essence* which cannot be envisaged as having a negative content. Faith is that measure of validity which is within the moving spirit that propels a creative thought.

The reader is reminded here that the word faith is never used in this thesis to refer to a *static belief*. Faith always carries in its baggage car some memory or perception that has a measure of validity within itself. Faith carries in its movement with time some mass-energy relationships which impart "life" to that faith. The train

of faith may move faster at times than at others, and may even stand on a side-track for rest or sleep, but when its life is gone faith is dead.

"Static belief" may be an imaginary concept, or merely a *belief*, which depends on neither time nor substance to substantiate it. Many religious liberals talk as if they could detect the amount of *static* which is in the belief of another person's mind more accurately than can that other person himself. Trying to ascribe psychic content to concepts just by observing their external appearance is like judging food for the physical body by appearance alone. The vitamins in foods are particularly difficult to evaluate simply by observation; and yet the addition of mental vitamins to our psychic diet is precisely what is needed today.

Many skeptical minds may examine and even taste the shell or the husk within which a kernel of thought grew, and, finding that husk unpalatable and indigestible, they refuse to taste the kernel. The skeptic refuses to partake of fruit which may have grown within a husk that is foreign to his imagination.

### *Scientific Skepticizing*

In introducing the subject of Scientific Skepticizing, we will first let one of their own members speak for himself. Dr. Edward U. Condon, who was formerly director of the Bureau of Standards in Washington, D.C., said in a recent address:\*

"... the critical questioning attitude is an essential ingredient of the scientist's method of working. Without it the method does not work. . . . Clearly it would have been

\* Address to session of the American Association for the Advancement of Science on, "The Role of Scientists in Society," reported in "Science News Letter," Jan. 16, 1954.

hopeless with those people on that occasion to make the point I am trying to make here on the *duty of dissent*. I hope it is not hopeless or even necessary here. . . . there is another type of ex-Communist who never as a Communist had an inquiring or critical mind but followed in *blind faith* until they happened to be disillusioned. . . . In my opinion the most important contribution which science is making and in large measure has got to make to human welfare is the inculcation of the scientific attitude of objective critical analysis of complicated situations and of *the ability to reserve judgment until the facts are in.*" (The italics are mine.)

It is rather surprising to have such a vigorous presentation of the "duty of dissent" and the critical attitude which it entails at this late date. In the earlier decades of our present century such an emphasis was not uncommon among the proponents of science. It was precisely the fostering of this dissenting attitude in the human brain which produced the skepticizing fog that now lingers in our modern mental atmosphere. The density of this fog seems to obscure a clear mental approach to the problems of our day, even in the minds of some of our scientists, as well as in the minds of men on the street. Condon refers to "blind faith" as being undesirable and then proceeds to advocate and commend "the ability to reserve judgment until the facts are in."

This "ability to reserve judgment until the facts are in," comes about as near to advocating *blind faith*, or a negation of all faith, as one can imagine. A child born into our modern skeptical atmosphere, according to this dictum, would have to reserve judgment relative to the problems of life until such time as he might fill a skeptic's grave; because if he were a growing creature, the facts relative to his life would not all be in until he discontinued to grow. One might reserve judgment which



pertains to the fall of an apple, until the facts are in, but he can hardly reserve judgment on the desirability of eating an apple until the "facts are in," relative to the growing of that apple.

Science, as a body of organized mental discipline, refrains from the statement of any theoretical postulate dealing with the relative significance of scientific concepts as compared comprehensively with the concepts in other schools of learning. But, skeptical minded scientists repeatedly refer to the imagination and to facts as if these two mental concepts should be sufficient to guide a scientist, or anyone else, through the mazes of life. Imagination and facts do not mix any more readily than do oil and water; and yet, the difficult problem of sustaining an emulsion of these two is *supposed to be sufficient* to guide a human being, and a society in which he lives, through the labyrinths of life.

The problem of guiding human beings, and the societies in which they live, through the labyrinths of life is, or at least *ought* to be, the number one problem in every age and among all peoples. If this is so, "learning" and the guidance acquired through learning should take precedence over the mere recording of data interpreted as facts. Facts do not interpret themselves and every generation brings forth a brood of children who must learn to interpret the facts which a previous generation recorded, and assumed to be true. This last assumption is a precarious one, especially in the field of science, where the facts presented to one generation may differ widely from those presented to a former one.

The capacity to learn resides in a capacity to perceive, therefore, the first aim in education should be to increase within the child's mind his capacity to perceive. How

can one intelligently proceed to increase the capacity of perception without having at least some postulate or theory in his mind as to how perception itself is created?

For some time past, humanity has proceeded on the basis that the study of "cause and effect" presented the best foundation for progress in mental development. The mental confusion which has resulted from an attempt to build a stable mental structure on this foundation is all too evident at the present time. Possible mass-energy relationships within this universe are too numerous for a skeptical mind to proceed toward a stable organization of the society in which he lives. A faithful attempt to account for the perceptions which originate such concepts as he does use should be at least outlined.

Scientists themselves have moved out into a labyrinth of equations which, admittedly, they cannot explain to the man on the street. They also have difficulty in extracting any philosophical significance out of these equations. Engineering *in its latest refinements* is relied upon to verify their calculations and to interpret them in one experiment, so as to lead to a succeeding experiment. Thus scientific adventures into the infra-conceptive range of the mentality spectrum reveal the possibility of an expanding series of experiments, concerning the trend or conclusion of which scientists themselves are not even willing to make a prediction.

The Einstein conservation equation, however, seems to represent a conceptual integration in the form of a physical relationship between mass and energy that opens up a mental vista which promises to be far more effective in producing genuine mental insight than was the old concept of cause and effect. What was *cause*, and what was *effect*, have been swallowed up in a more realistic concept of mass-energy relationships which con-

tain a possibility of un-numbered, though not un-limited, achievements within this universe. The different levels of these achievements extend from violent atomic explosions, through an innumerable series of levels within the process of evolution, up to and including deliberative activities within a mentality field.

In such a series of ascending possibilities there can be little value in "a duty of dissent"; and *criticism* can have little place in determining the next possible mutation which may reveal a new insight within a mentality field. Chiding another on his faults and dwelling on negatives and disintegrating processes do not help much in constructive thinking.

Thinking along a creative line will require the contemplation of perceptive increments which can be added to already existing mass-energy arrangements that are capable of producing mental activities of a high order. How else can we interpret the scientists' own assumptions that it has taken hundreds of thousands of years to evolve a mass-energy arrangement which is capable of generating enough perception so that it is conscious of itself, and is capable of integrating enough of its own percepts to create a concept that can be consciously contemplated?

Thinking does not start from scratch even in a child's mind, and much less, does it start from scratch in the mind of an adult thinker. Those who have studied the nicety of the arrangements in the operating structures of the human body have been impressed by the precision and the wisdom exhibited in the movements within that body. All this wisdom and more must be present within the sanctity of those mental activities which are capable of producing insight.

I suspect that the constructive accomplishments which



result from the activities in any scientist's mind are due far more to faithful thinking about the problems in hand than to any skeptical imaginings which he may harbor within his brain. The faithful thinker concentrates on the contemplation of those things which have some relationship to the problem on hand. He is more interested in the food value of his mental concepts than he is in garbage disposal. As already pointed out, the successful investigator pursues a trial and selection program rather than just imagining that he is getting ahead through a process of trial and error.

The imagination, not being grounded on factual data, but instead being commingled with error, does not present a stable foundation for understanding between neighbors. Understanding between neighbors can only occur where concepts are used that have a common ground of validity in the mentality of each neighbor.

Our animal psychologies, many of which lean strongly toward advocating "the ability to reserve judgment until the facts (of life) are in," combined with the advocacy of strong arm tactics which emphasize grabbing, pushing and fighting in the struggle for survival was the dominating mental outlook presented to growing boys and girls in the early decades of the present century by the proponents of stark evolution. Is it any wonder that today, a generation or two later, skeptically-minded individuals are so distracted by their own delusions that most of their mental energy, and indeed much of their physical energy, is spent in fighting and preparing to fight?

Is it not about time that human beings studied the long range possibilities within their mentality fields instead of doubling back on their tracks and trying to find out how the animals used their brains?

The skeptic does not believe that the lower animals have any imagination, at least not enough to talk about, then he studies these lower animals to see if he cannot find out how to develop and use his own imagination. Such a roving imagination does not have enough assignable validity to make it a very valuable concept for use in thinking about thinking. Someone may ask, how then did some skeptical scientists make good headway by using only their imaginations? The answer is, at least they did exercise something more than the fantastic end of their imaginations.

As already pointed out, "a successful investigator uses his whole mind for whatever it is worth," irrespective of whether he may have previously made a successful inquiry into *how he can perceive* anything. In the introductory portion of a recent book, "Science and Common Sense," we read:\*

"In an elementary exposition of scientific methods one may be permitted to by-pass to a large extent the worries of the learned men who wrestle with the problems of how human beings can know anything or indeed what the word 'know' may mean."

This quotation exemplifies the attitude of a skeptical scientist as he approaches the general topic of "Science and Common Sense." Words are used to play down the importance and the lack of lucidity in the second coordinate, "Common Sense" in the title of this book. The author devotes almost the whole of his book to the "exposition of scientific methods" with very little reference to "Common Sense". He uses *common sense* as everyone else does, as an off-hand repository of ideas which are so complex that the existing philosophy in the mind of

\* "Science and Common Sense," by James B. Conant, Yale University Press, 1951.

the speaker is inadequate to supply a more comprehensive explanation of his accruing mental activities. The general discussion in "Science and Common Sense" leans heavily in the direction of producing a *scientific common sense* isolated from the common sense which might be developed within some other school of learning. This omission of reference to other schools of thought is a besetting sin of the skeptic and consciously or unconsciously prejudices his mind. Prejudice, supported by evidence, is a deceptive mental guide.

### *Scientific Skeptics*

Mentally, a scientific skeptic is a homing pigeon; he "instinctively" returns to his mental abode, no matter how far he may be carried physically away from it; he might send up a mental balloon, so long as he had a string tied to it; but, he would not trust himself in a "mental dirigible" because he could not depend on his mental controls to bring him back to exactly where he started from; and, as for a "mental aeroplane," where he would have to continually exert "mental effort" to keep himself afloat, that is so far beyond his concept of the potentialities of mentality that he would consider the idea absurd.

A "scientific skeptic" is a human animal with a peculiar mind. These peculiarities are many. He thinks of himself primarily as a human animal, because he recognizes himself essentially as an animal, with only a little urge beyond the animal level of thinking; and this makes it easy for him to think only slightly about training or developing his *own* mind; because, he does not see that the animals devote much time to the development of their minds. If he thought of himself first and foremost as a human being who, through evolution or some other



unexplained process, has arrived at a stage of existence that is quite uniquely beyond the stage of animal existence; he would then have to ask himself, in what way does this uniqueness manifest itself? A little inquiry would reveal that a recognizable difference is that man has a larger mental capacity than the other animals.

This only poses another question, "Why?" The scientific skeptic is willing to measure brain cavities to see if volume of the brain can account for the immense differences observed; but the result is hardly reassuring. How about improving the *quality* of the mentality which man already possesses in some measure? But this would run head-on into his abiding prejudice that mentality does not have the necessary integrity to engineer its own development. If he should yield on this point the very foundation of his skepticism would be placed in jeopardy.

There are many varieties of scientific skepticisms, each having a peculiar characteristic common to them all. The adjective *scientific* imparts the peculiarity to this union of disparate concepts. Skepticism is a minus belief, if such a concept can be anything more than an imaginary quantity. Thus, scientific skepticism may be a chameleon concept that is capable of changing its attitude color over the whole range from white to black. This hybrid concept can change from a keen interest in inquiry, to a completely blacked-out interest, according to its chameleon attitude at the moment; if pursuing a scientific topic, mentality may be applied with its fullest possible voltage, but if a philosophic, or religious topic is proposed for consideration, the voltage may drop to such a point that no illumination is produced.

Scientific skepticism is not a pure strain of skepticism because it derives some sustenance from science. A

species of scientific skepticism may be likened to a mental porcupine. In this guise, science is its living body, and skepticism is its quills. This mental porcupine can roll itself into a ball and present a forbidding aspect to any concept which it does not like the looks of. Our modern mental forests are full of these *exclusive* little creatures of the mind.

### *Some Skepticizing Variables*

Just as the variable stars in the distant firmaments may cease to be visible on occasion, so the arguments of the skeptics seem to have times of vanishing into thin air. A book published in 1936 was dropped into my lap by a young student soon after that book was published.\* This author was not satisfied to criticize God, he also criticized Nature as being inefficient and wasteful in her methods; of being careless and inconsiderate of the needs of man. For example, Furnas could not see why Nature did not plan things so that a man would live twice as long as he does now? Then a man like Edison would have three times as much time for his good work as he was permitted. Furnas figured that about half of a man's statistical life is given to getting ready to do something; therefore, if nature had been far-sighted she would have given man a longer life, so that he would have more years consecutively to do something after he gets ready to work.

There is no evidence here of any contemplation of the natural significance of childhood, in terms of the desirability or virtual necessity of increasing the length of time during which the young rely on their parents

\* "The Next Hundred Years," sub-titled, "The Unfinished Business of Science," by C. C. Furnas, who was Associate Professor of Chemical Engineering, Yale University. Reynal & Hitchcock, New York.

for guidance, as life depends more and more on conscious direction, rather than on instinct. Nature apparently provides a lengthened period of apprenticeship, during which time the child can learn the meaning and the ways of wisdom, so that he can direct his activities through the mazes of life by the use of his mentality as he releases his hold on instinct.

This natural change in parental responsibilities toward their offspring will be discussed further in later Chapters, but I should like to remark here, in passing, that Furnas did not seriously consider the possibility of *critics*, as well as constructive thinkers, being born on this planet. Perhaps Nature recognizes that the critics and the war-mongers might succeed in their destructive tactics, if they were permitted to live too long; and thereby Nature's long-range plans for a better world would be defeated.

The length of the Furnas imagination is indicated by this further quotation from his book:

"No professional scientist is satisfied until his field of study has been completely conquered, and certainly the science of life cannot be said to be subjugated as long as its most expert students die of natural causes."

This sentence indicates the ease with which this author could mix desire with prophecy without batting an eyelash. He refers in a similar vein to the enormous laboratories that will be needed to complete the "unfinished business of science." He did not bother his head about how the money might be raised to build such laboratories, nor did he explain how the individuals in society might be kept contented, or at least satisfied, while they supplied the money for building and operating such immense laboratores. He has a chapter on "Outdoing Na-



ture," and in general writes as if man had nature in the palm of his hand. But, after awhile he is not quite so sure, when he says:

"To stop our forward progress, even if we could, would hardly lead elsewhere than to a complete wreck. If we keep on it is through a dense fog with a promise of bad weather ahead, but that is where we are going. Whether we like it or not we are on our way."

Then on his last page he says:

"We are as a bird beating its head against invisible glass to get into a warm and attractive room. A barrier is there that we seldom see and then but dimly. We cannot analyze it, we cannot remove it."

If the skeptics wish to erect an impenetrable glass plate between the present and the future, that may be their privilege; but, they must not expect individuals, who have not yet contributed to the construction of that *glass plate*, to be limited in their forward vision also.

Let us return to his page 136 to see if we can find any evidence of a mental aberration that may have been used in the construction of *this mental glass plate*? He says:

"An effective religion is purely emotional . . . True science shuts all doors against emotion from the very beginning . . . The four aces of modern popular celestial physics, Compton, Eddington, Jeans and Millikan, are willing to mix one part deity and one part data to make their hypotheses but that does not prove anything except that their boyhoods were spent in religious atmospheres . . ."

It would be interesting to know in what "atmosphere" Furnas spent his boyhood. At least, we should like to know at what age he acquired the mental ability to

ignore one-half of the mental activities of the human race, and still persuade himself that he was an open minded scientist endeavoring to face, without prejudice, all the facts in this Universe in which we live.

One wonders at what age Furnas became fully aware of his critical faculties? On page one of his book he says: "— the critical mind can filter out all objectionable phases." If he wished to "filter out" religion as an "objectionable phase" in his own life, that was a privilege that might be granted to him individually; but, when he undertakes to write a book ostensibly for public instruction, in which he would "filter out" all religion as an "objectionable phase" in each and every human life, that is a different matter.

In deference to scientific procedure, which purports to be his ultimate criterion, one would think that he would muster a few facts in support of this drastic recommendation, rather than depend solely on an impulsive or an emotional statement of his own, to the effect that "religion is purely emotional." One wonders what his contacts with religion could have been. Did he read Eddington's "Swathmore Lecture" delivered in 1929; and published in the form of a little book that same year?

If he did read this little book it is hard to see how he could fail to recognize that Eddington was capable of thinking and writing quite as coherently as is exemplified by anything which Furnas has written in his book. Furnas may not like the kind of thinking that religious people do; but, was it quite fair toward the young people whom he ostensibly hoped might read his book, and many did, for him simply to imply in the form of a definite statement that religious people do not think at all?

## *No Skepticizing Here*

In his lecture on, "Science and the Unseen World," Eddington says: \*

"In science as in religion the truth shines ahead as a beacon showing us the path; we do not ask to attain it; it is better far that we be permitted to seek. . . . Perhaps the most essential change is that we are no longer tempted to condemn the spiritual aspects of our nature as illusory because of their lack of concreteness. We have traveled far from the standpoint which identifies the real with the concrete . . . matter and all else that is in the physical world have been reduced to a shadowy symbolism. . . . Wherever a way opens we are impelled to seek by the only methods that can be devised for that particular opening, not over-rating the security of our finding, but conscious that in this activity of mind we are obeying the light that is in our nature. . . . You will understand the true spirit neither of science nor of religion unless seeking is placed at the forefront."

There is no suggestion here of any artificial barrier between the present and the future. Our mentality is expected to move freely into any sphere of influence where it may be of service to man. Every moment of our lives our bodies move from the present into the future. Why should not our thoughts move with them? But our thoughts are supposed to be a little ahead of our conscious movements, so why should they not anticipate the *future* a little ahead of the body? If the *past* had not been so egregiously impressed on the minds of growing boys and girls during the early decades of the present century perhaps the obsession of an impene-

\* "Science and the Unseen World," Swathmore Lectures 1929, by Arthur Stanley Eddington, F.R.S., George Allen and Unwin Ltd., Museum Street, London.



trable mental barrier between the present and the future would, by now, have been sluffed off.

### *Skepticizing Over the Air*

Broadcasting offers a great opportunity for presenting enigmatic statements which have a distinctly skeptical or skepticizing flavor. A few of these are quoted below; with a running comment on each.

“Perhaps some day, someone will really find out if there is a biological urge toward gambling.”

This is an excellent example of calling on biology for a solution of a modern mental problem. The engineers did not call in the animals to design an automobile; and yet, after man has an automobile he calls on animal psychology to solve a perplexing mental problem. Some men seem to think that if they could only be “clever like a fox” they would ask for no further mental assistance through life. If man had been satisfied with only his legs for transportation, he might have been content with only animal psychology to solve his living problems; although history shows that he was not.

Certainly, after having produced a high powered automobile through the cooperative-coordination of thousands of mentalities, he should expect to use a little mentality in the solution of the complex social problems which that very industrial activity created. Nature nowhere presents us with a pair of dice, or a deck of cards. The mentality of man devised these things, and it is probably up to the mentality of man to find out how best to use these things without hurt to anyone.

“He is the better friend who agrees with you when you are wrong, than when you are right; anyone will agree with you when you are right.”

The sophistry here so glibly set forth is probably the result of degenerative thinking about the old slogan: "My country, right or wrong." This had some validity when man was emerging from the jungle. Even to say, "My friend, right or wrong," makes sense when one is thinking primarily of friendship; one does not jilt a friend just because he makes a mistake; but, has anyone a right to deceive his friend on the pretext of befriending him? What kind of friendship is this? Also, since when has society become so wise, overnight, that it agrees spontaneously on what is right?

"We are all passengers on an express train traveling at high speed through a dark tunnel toward an unknown destination."

How could this "conductor" feel so sure that everybody was on his train? I know several people, including myself, who have not yet expended any of their hard earned mental currency for a ticket on that train. I also feel quite sure that if those individuals who imagine that they are riding on that train, would only stay on that train until it reaches its destination the rest of humanity would be better off.

"It is easier to believe, than not to believe."

This appears to be about as inclusive a definition of skepticism as can be given. The rest is inference. The first inference that one is apparently expected to make, is that the skeptic does not choose the easier way; he chooses the harder way; and this, supposedly, is a virtuous choice, because every human being must do some struggling if he expects to live. But, a belief may be only a carrying concept, and not the thing itself. It may be the mental basket in which fruit is carried. It is the quality of the fruit in the basket that is important.

The next inference about a skeptic seems to be that he would rather carry a light psychic basket than to permit anyone else to drop mental fruit into his basket. This usually means that his mental larder is scanty, when it comes to mental vitamins of many kinds, although there may be plenty of particular "brands". Belief, without any stipulation of what it carries, does not have enough mental substance in it to be a reliable norm for evaluating virtuous mental conduct.

If we ask the skeptic to give a more comprehensive definition of skepticism, than that given by the commentator above, he is apt to demur. He probably would not state directly that thinking is too difficult for him; but he would make you understand that thinking is likely to get your thoughts mixed up in philosophy and theology; and heaven knows the ideas in those two fields are mixed up already without adding another dissenting opinion.

### *Diffusive Thinking*

On a performance approach to thinking, it would probably be reasonable to say that the skeptic has not yet developed his forward psychic urge to the point where he can enjoy "pure" thinking, with a complete mental laboratory set up for trial and selection verifications. In general he prefers to rest his head on his own imagination. However, when such an imagination is projected back through the centuries it may become a ghastly interpreter. This last statement was provoked in my mind by the manner in which Irwin Edman used his imagination on Socrates in a magazine article in February, 1953. I shall begin here with a telling quotation:\*

\* "Socrates on Trial," by Irwin Edman in "The Atlantic Monthly," February, 1953.



"For it is the Socrates of Plato that has affected the imagination of mankind in a way comparable to that in which the image of Jesus, as given in the Gospels, has become central in the imagination of generation after generation for the last two thousand years."

Any effort to interpret the deepest thinking of Socrates or Jesus in the terms of unsubstantiated imagination can be little short of gross sacrilege toward thinking itself. Each of these men thought of his deepest thinking as being touched by divinity. Whatever else we may conceive divinity to be, it has touched human consciousness in a manner which cannot, as yet at least, be remotely defined in factually isolated concepts. Quoting again from Edman:

"And though he (Socrates) did obeisance to the official gods, and gives evidence of a sense of conforming to, even setting store by ritual, he did not, it was clear, take the gods of the Olympian religion literally."

Edman apparently has a domineering impulse at the center of his imagination which not only insists on ignoring every evidence of divinity in the mind of man, but also insists on dispersing the gods and diffusing every evidence of their existence into the nebulous limbo of his own imagination. Diffusion into nebulosity is a common practice for many hard-boiled skeptics. Edman appears to take the concepts of science, that is the gods of science, "literally." These gods, or concepts, were the mental guides in science while they lived. The short life of many of these guides, or gods to which scientists gave allegiance, does not minimize the idea that the mind of man needs mental guidance, but rather, it reinforces a widely accepted idea that guiding concepts in the mind of man are indispensable to human progress. The limitation in many scientific concepts is that they

are often restricted, in both scope and time, so as to be of little value in thinking about thinking from one generation through another. Many scientific concepts do not last through a single lifetime; whereas, many of the factors which affect genuine thinking have a chain significance that is rooted within the eternal.

Moreover, scientists enthusiastically theorize about almost everything that they do. Some modern scientific writers divide theories up into, "limited conceptual schemes," and "grand conceptual schemes"; and then balk at attempting even a limited conceptual scheme as a start toward an inquiry into what objective mentality might be. The mind is one thing that they are willing to use in the laboratory without making any investigations relative to that mind in an effort to discover something about the nature and qualities of that which they use to pass judgment on everything that they do. This is not all, then they criticize those who dare to theorize, or theologize, about making or evolving this mental capacity into something more than it already is. As pointed out in the previous Chapter, mentality in its supreme moments, is not what *it is*, but what *it is becoming*.

### *A Mental "Missing Link"*

During our scientific era the emphasis has been placed on imaginary concepts relating to the past and on digging up evidences relating to the past, rather than concentrating on mental potentialities with a view to realizing those potentialities in the future. The farther one delves into the past the farther one gets away from any possible mental contact with that which he is studying.

When man drops back to study animal psychology he has already catapulted his mentality back over a gap which cannot be traversed step by step, in this reverse direction, with any degree of precision. When this gap is traversed in the normal evolutionary direction these steps cannot yet be traced by present scientific procedures with any great degree of accuracy.

The scientists have postulated "mutations" to explain in some measure the upsurges in the physical evolution; and we are here postulating mental mutations to suggestively explain psychic upsurges, or insights. We have also suggested mental compounds or mental alloys as analogous concepts which may be useful in envisaging procedures leading toward the larger possibilities of mentality.

If anything akin to these sudden enlarging qualities is possible within a field of mentality, then we have only touched the margin of psychic potentialities. If these assumptions are even approximately valid, they suggest the utter folly of trying to judge the merits of a mental alloy by examining the early evolution of the properties in the ingredients which later entered into the constitution of that alloy. Steel may be more than 99 percent iron, and yet no amount of study and manipulation of iron ores, or even iron itself, can reveal the potentialities of steel. These potentialities were revealed and validated by trial and selection procedures which included the adding of something to iron to produce steel.

The purpose of re-stating and emphasizing the potential possibilities, within a field of mentality, is to plead for a more concentrated effort toward achieving some of them; instead of spending so much time studying remnants of the past, and collecting data relating to the



past. Contemplating relics of the past skepticizes the mind, instead of equipping that mind with potentialities that might be realized in future achievements.

One can dig up some bones and look at those. He can imagine the depth of flesh which may have covered those bones, at different places, and then by applying a heavy coating of "make-up" he can produce something more "realistic" that he can look at. By digging up more bones, using more imagination, and adding more make-up, he can collect a considerable number of these "realistic specimens" and place them in a museum, where great crowds can go to see how nature evolved man. But, there will be no evidence there of how the mind of man was developed.

Is it not about time that we devoted some attention to thinking about how the mentality of man came to be what it is? Isn't it about time that we gave more thought to thinking about mental procedures, than to digging up bones? Certainly, we cannot live in the past except in our imagination; the only place we can actually live, from now on, is in the future. Would it not be well for us to give a little thought to what we are carrying into the future, with the idea of being able to live a little better there than we have lived in the past?

Instead of imagining uncomplimentary attitudes of nature towards us in the past, why not listen to the whispering councils of a better world in the making? Are we willing to surrender our forward urge for a mess of pottage? At least, we might inquire into what the beneficent forces in nature have been, which have been able to pilot mentality to its present mobility and nobility.

If the skeptical scientists had spent as much time in trying to locate the "missing link" in their own psychological analysis of their own mentalities, as they did in

trying to locate the missing link in the animal evolution of the human body, we might be farther along in the line of true evolution; at least, our mentalities might be less confused so that we could perceive more clearly the next step ahead.

### *A Propagandized Error of Man*

It is possible today for more people to escape farther from a mental awareness of the preparation of many of the necessities of life, and continue to live, than has ever been possible before in all history. The specialized quantity production of foods, clothing, medicines, transportation and communication systems, together with many specialized occupations, make an imposing list of the aids which permit man to live, without knowing much about a great number of the necessities of life, which are supplied to him "ready-made." It may have been a sad irony of fate, but more probably a propagandized error of man, that that school of learning, which provided extra time in which man might have improved his awareness of mental phenomena, should have assumed a skeptical attitude toward mentality itself.

This skepticism, combined with the physical release from the necessity of perceptual awareness of many of the problems of life, has produced, or at least, permitted the coming into being of a laxity in mental integrity and determination, which have resulted in a gradually increasing mental instability that is alarming when one contemplates its projection into the future.

### *Obscured and Repressed Thinking*

"Science and Common Sense," already referred to, was written by a proponent of skepticism and, even where the author does not openly avow skepticism, there

is enough skepticizing present to impregnate the main body of his general narrative with an unconcern toward mentality, which exemplifies a mental diffusion and a lack of perceptual drive. The quotation, near the beginning of this Chapter, relative to "what the word 'know' may mean," is the key to his mental diffusion. He ostensibly is not concerned with how he might perceive anything; he is satisfied to call it "Common Sense."

This diffusiveness does not apply to his "case studies" of specialized scientific investigations, which occupy by far the major portion of his book. Here Conant uses every mental strategy of which he is capable to make a convincing statement. A reasonable deduction from this difference in perceptual effectiveness appears to be that skepticism itself is a mental fog, or smudge, which obscures clear mental vision.

In the early decades of the present century budding skeptics tossed into the smudge-pots of skepticism whatever bits of mentality they could lay their hands on; thereby producing an obscuring density of smudge. Few of them recognized the smudge for what it was, but it was accepted as a mild irritant which ostensibly accompanied mental activity, much as we accept cigarette smoke today. Now, however, old skepticisms mixed with new ones have produced such a strong and irritating smog that the voice of vital mentality is being choked out in many quarters. In his discussion of skepticism, Conant says:

"The acid of skepticism must be applied with equal boldness to religious documents and to scientific theories."

This sentence has a familiar campus ring inasmuch as it is a typical form that was often repeated in and around college campuses during the early decades of this cen-



ture. This statement implies an impulse to destroy, if one can.

It does not require much chemical knowledge, however, to realize that one could not expose the works of his watch, and plunge them into a bath of strong acid and expect the watch to run when he pulled it out of the acid bath. Likewise, a highly coordinated concept cannot be subjected to a bath of acid skepticism nor even to a heavy blow from a logical trip-hammer, and come out in an un-deformed condition in the mind of the skeptic who applied the acid or tripped the hammer.

This does not mean that a highly coordinated concept is no good; it only means that a skeptic does not know what the concept was made for, nor *how to use it*. The test of any delicately adjusted scientific instrument is not whether it can be mechanically destroyed, but, "what can it be used for?" Likewise, the test for any delicately adjusted concept is not whether it can be destroyed, either mechanically or mentally, but existentially, *what can it be used for?*

When psychic forward thrust occurs it is propelled by some psychic phenomena which carries one beyond the mental station where he may have tarried for some time. It matters little whether this tarrying may have been occasioned by conceit, or by pride, or by prejudice, or simply by primordial animal inertia, these must all be met and conquered for what they are; it only makes matters worse if their possessor erects a stockade of skepticism around his brain to insulate the brain against the intrusion of outside postulates.

The mental laxity which is often present in the mind of the skeptic leads to the lumping together of many psychic distinctions; and the consequent comparison of mental concepts which are unequal in scope, or magni-

tude or both. For example, in the above quotation, "religious documents" are compared directly with "scientific theories." "Religious documents," being such an inclusive designation, may contain the records of integrated observations that may have been accumulating through years or even centuries.

Religious documents might have been compared directly with scientific documents; but, this would have immediately appealed to Conant as inadvisable because he is not as skeptical of scientific documents as he is of religious documents. Why? Because as he said earlier, "—his (the scientist's) jury today is a large body of well-informed peers—" But, how does he know that the Bishops, who may have sat in a Synod of Bishops, were not well-informed when they passed on some information that may have been recorded in a religious document?

Alternatively, religious theologies might have been compared with scientific theories. This, in general appearance, is more reasonable but to make a fully valid comparison the author would have been obliged to extend the substance of his scientific theories so as to include a plausible theory on the generation of perception.

Later, Conant makes this comment:

"It has been recently said, 'the peculiar problems of the age lying ahead of us will be to reconcile science and wisdom in a vital spiritual harmony.' To this most of us would agree, but we might well differ profoundly as to the nature of the obstacles to a reconciliation. They do not lie in the fields of physics, chemistry, or experimental biology, this much seems certain. The difficulties concern the record of the past and the status of certain documents."

Even though Conant said earlier, "Thus conceived, science is not a quest for certainty, it is rather a quest

which is successful only to the degree that it is continuous," yet, in the above quotation, he seems to be able to draw *certain* conclusions from past sciences.

Not much *wisdom*, and even less *spirituality*, was postulated in "the fields of physics, chemistry, or experimental biology." Expecting to find much information relating to the mentality of man in *experimental biology* is like digging in an iron ore deposit with the expectation of finding there high grade steel. The geologic ages formed the iron ore deposit, but man had to make the steel. Man also has had to respond to his forward urge to make something better and better out of his own mentality. This he has accomplished measurably well. Is he going to surrender now? I do not think so. If not, he must push forward, and not merely rummage among biological impulses.

The ineffectiveness of rummaging in sub-human experimental biology in the hope of finding there the laws relating to the development of insight in the human mind is like adding heat to *water under pressure* in the hope of learning something about the behavior of steam without permitting the steam to escape from the water. The laws relating to the flow of steam can only be determined by studying the flow of steam after  $H_2O$  has been changed from water into steam. The idea of studying water, where it is repressed so that it cannot become steam, in the hope of finding out what the future possibilities of steam might be does not make even common sense to me. Man has been pushing ahead under his own steam for some time.

The above quotation was framed with reference to the difficulty of a reconciliation between conceptual deductions as recorded at different times, and at different



places. Whereas, the problem in hand should be to develop more wisdom and more spirituality so that we might have an opportunity to select the most promising psychic elements in each.

If the scientific skeptics were open-minded in the sense in which they wish others to get their meaning when they use that term, they would not *hold back* from throwing all these ideas together and testing them all, inclusively in the future, within a *field of objective mentality*. The future is the only place where anything can be tested after today. Of course, in a field of mentality the imperative of *mental integrity* will have to be as rigorously observed as is the law of gravitation in the physical sciences. This should not be too difficult. Scientists already know that if they wish to get any physical results, they must conform to the laws of physics. Is it impossible for a human being to learn that if he wishes to obtain optimum mental results, he must likewise conform to the natural imperatives which can eventuate into achievements within a mentality field?

Referring again to the statement quoted a few pages back, "Thus conceived science is not a quest for certainty, it is rather a quest which is successful only to the degree that it is continuous," gives us some food for further thought. Conant professes to be a skeptic, and in some attitudes he certainly is, but when he uses his mind in his own professional thinking his skepticism disappears, at least into the background as he uses the mentality which nature provided for him. When considering the heart-throbs of science, as in the phrase just quoted, he realizes that the idea of an *eternal* is not all a myth. Science must exist within a continuum of time or it will cease to exist. Why does this degree of mental

acumen cease to function when Conant begins to think about thinking?

Every idea is perceived within a continuum of time and ceases to exist when it is not propagated through a continuum of time. All living things are propagated and have their being within an eternal, that is, within a continuum of time.

## CHAPTER IV

### MODERN SKEPTICIZED THINKING

The line of demarcation between this Chapter and the previous Chapter cannot be definitely drawn. Our vast industrial systems with their dependence on mechanicians and mechanical contrivances provide an atmosphere favorable to the inculcation of both skepticizing influences and skepticized thinking. In Chapter III we discussed those mental attitudes which consciously or unconsciously led toward propagandizing statements. These statements were consciously or unconsciously directed toward the skepticizing of the mind of man.

In this Chapter we are more directly interested in the mental inclinations and activities which flow from already skepticized minds. In other words, our scientific era has produced a skepticized mental atmosphere which must be breathed by all those who draw sustenance from that atmosphere. The skepticisms which have been engendered in the public attitude by breathing such an atmosphere have become so well-nigh omnipresent that speakers addressing large groups of students and other audiences, are perforce compelled to address their listeners as if skepticism were a natural mental reaction in the mind of a normal human being.

The repeated and incessant reference to imagination, rather than faith, as being the fundamental medium in the propagation of mental activity probably lies back of



the wide spread dissemination of skepticism in our modern atmosphere. Imaginative concepts are usually assumed to represent the *here* and *now*. Imaginative concepts are not even assumed to have any content within an eternal. They are not assumed to exist within the continuum of time; that is, they do not move from what *was* in *time* to what *is* in *time* nor toward what *can be* in *time*. The imagination is like a photograph, the more instantaneous the better.

Modern photography gives us instantaneous impressions of the outside of things, then moving pictures and television repeat these instantaneous impressions so rapidly before the eye that the eye does not have time to separate these impressions one from another, thus producing the effect on the eye of a moving body. Engineering has produced a high degree of precision in the accuracy with which instantaneous impressions may be recorded and has produced many ingenious methods of regulating the speed at which these impressions may be recorded, and then released at a different speed. This provides a further means of "deceiving" the human eye, or of instructing the human eye, relative to movements which the human eye unaided cannot perceive. For example, everyone is familiar with the taking of a "slow movie" of a growing plant and then speeding it up to show the struggle and the nicety with which the petals of a flower may open.

Then, one exclaims, "How wonderful it is to see how a flower grows." Ah, but this only reveals the outside appearance of an inward integration within the plant that is producing a flower. The secret of *growth* which lies back of the appearance of the flower remains a *secret*.

The mass-energy relationships which are continually

changing during the production of a flower, or any other growing phenomena, are not and cannot be revealed by a camera because the camera can reveal only changes in positions of mass and does not reveal the *energy* which is producing those changes. At our present state of comprehension about as far as we can go is to say that mass and energy are confluent assembled in bundles of smaller or larger integrations; the characteristics of some of the bundles can be partially perceived and integrated into a more comprehensive bundle as the voltage of our perception increases.

The engineer has learned how to assemble, divide and assemble again some of these bundles and has even learned how to interpose the energy released by a chain reaction within one of these bundles, which results from an inherent conversion of mass into energy, and to apply this energy to the movement of one of these bundles relative to the movement of another bundle so as to produce useful work to satisfy some of the needs of human beings. Perception acting through time is an antecedent activity of the mind which is necessary to produce any such useful results.

Skepticism is a "hobo" who has taken many a ride clinging to the outside of a train of thought, but he never rides inside one of the coaches because he never pays his own fare. Concepts are the "coaches" in a train of thought. Skepticism never created such a coach, much less an engine to propel a train of thought. Skepticism is no part of a genuine concept.

Skepticism does not even conceive of itself as being carried forward from generation to generation through some inherent process within a continuum of time, but as an impromptu imaginary attitude, it is interested in the here and now; it is not concerned with how it came

into being nor how long it will live; in short, it is a figment of an imagination.

### *Clinging to Differentiations*

In a skepticized society each may grant the equal right to be egoistic mentally, and the equal privilege of ignoring the cumulative mental deductions made by others; but, a stable society can hardly be built on such a diffusion of imaginary equality. How could there be a common measure of validity in the minds of such individuals? The skeptic objects to the very thought of a measuring rod for his mentality, probably because he is not too sure of what is within his own mentality field anyway. It is routine for him to use common measuring rods for determining his ideas about things, but somehow he feels that any validity norms applied to his mind might standardize his mind. There seems to be a "break" in his mental processes somewhere, because standardized measuring means have been used for years for determining the relative weight and position of atoms, molecules and even stars, without standardizing these things. This "break" in the orderly flow of mental energy in the mind of the skeptic has probably been kept open by the excessive emphasis which has been placed on differentiations during our scientific era.

My eye has just fallen on this statement, in a weekly magazine, "No agreement can possibly be reached if we ignore our differences." This is a typical illustration of clinging to differentiations, instead of separating out extraneous material and selecting those ingredients which can be united in a fruitful integration. Good steel can be made by collecting ores, from widely separated ore deposits, which carry with them varying amounts of

\* "The Christian Century," February, 1953.



extraneous material which are separated out before the "fine metal" is alloyed into steel.

Our whole engineering progress has been achieved by discarding nonessentials, selecting refined ingredients and integrating these into improved alloys; then shaping and combining these alloys into integrated units, and finally assembling these units in an integrated machine capable of performing a useful function. Is not this a graphic outline of the whole evolutionary process? If it is, should not our mental procedures be patterned along similar lines?

The above quotation was lifted out of a discussion of the desirability and possibility of consolidating the different Christian denominations into a more integrated group. The inherent principle of integration requires the selection of those ingredients, which in their very essence will voluntarily unite to form an integration. In our mental achievements this process of selection is equally imperative in that only those ideas which have a constitutive essence capable of coordinating and cooperating with each other can be united to produce a new psychic insight, such as might take the form of a new spiritual integration.

The diffusion of mentality during our scientific era has resulted in large measure from an over-emphasis on differentiation and a lack of emphasis on integration. Every known species of plants and animals under the sun have been studied and classified according to their differences, instead of studying and giving some thought to the latest evolutionary types among these as to how each may have become integrated into what it is; and what light the principles that control instinct might throw on the processes of evolution.

Instinct appears to be largely memory kept in "cold

storage" so that it does not deteriorate; and yet the animals do perceive some things with sufficient clearness to make some selections. They, in some degree at least, select their foods; and, some of the more aristocratic among them select their mates for life.

The dictum that "No agreement can possibly be reached if we ignore our differences," is diffusive. No civilization would be possible if many individuals in that civilization did not "ignore their differences," on many occasions. The emphasis, during our scientific era, on "the survival of the fittest fighters," has stressed an unwillingness to "ignore our differences" as a laudable ambition. Fighting between man and man has been championed as developing physique. But modern warfare can hardly be said to be a physique developer. I suppose the war-mongers might tell us that the war machines they are building today develop the mind of man. If they do, they are developing a skepticized mind and not a spiritualized mind.

No integrative agreement can possibly be reached if we ignore our integrable *similarities*. Similarities are not yet identities; and the very fact that an agreement is being sought indicates that we have sympathetic similarities, but full harmony does not yet exist. No communication between man and man would be possible without emphasizing similarities; no language would be possible without letters and words which mean approximately the same thing to different people; no science, such as we know it, could have been developed without mathematical symbols and formulae which mean approximately the same thing to separate individuals; and better and better engineering appliances as we know them could not have been developed without coordination and cooperation between engineers and mechanics who

understood approximately what others than themselves were striving toward.

The thought of being different, the idea that evolution was paced by differentiations instead of integrations, has produced a notion that mentality is developed by stressing differences rather than seeking out those characteristics which are sufficiently akin to each other so that they can voluntarily unite into an integration which is superior to anything that existed before. The fundamental principle in evolution is cumulative and not dispersive. Those people who continually try to be different seem to forget that it has taken thousands of years, not to mention millions of years to arrive at the mental station where they now are, and in trying to start from some arbitrary scratch, they often do not even catch up with their original take off point.

### *Random Skepticized Thinking*

Let us begin with a few of the "most randomest" thoughts known to man. First, a full-blooded skeptic insists that man is such an infinitesimal speck, on a pin-head of an earth, in an infinitude of a cosmos, that the thought of man cannot have much significance in such a vast Universe. How does the skeptic know that the universe is vast? It certainly is not because he touched the most distant star with his index finger. Nor, can he see the most distant star with his unaided eye. I think the mentality of man had something to do with perceiving enough of the properties of light so that the minds of men coordinating and cooperating with each other were able finally to assemble large telescopes on high mountains.

Even then these large telescopes, standing there on their respective mountains unattended, do not reveal



anything about the vastness of space; the images delivered at the eyepiece of any particular telescope must be perceived and interpreted by mentality, or by mentalities. The scientific methods require that several mentalities arrive at substantially the same interpretation before a particular observation is accepted as a fact. Is it reasonable to assume that it is only impromptu imaginations which perceive and check such interpretations? Such interpretations are made by minds which have been trained in many engineering techniques, not to mention being immersed in mass-energy relationships which repeat themselves faithfully in order to convey understanding from one individual to another.

Other random thoughts: Why did nature take so many thousands of years to develop the consciousness of being able to perceive if it is only imagination? How can the skeptic chide his religious neighbor on creating God in his own image; whereas, insofar as the skeptic can see, he himself is the only god there is? I presume some scientific skeptics might interject here: "Why waste time on such ultimate concepts when the main business of science is to deduce facts?" Our rebuttal here is that mankind seems to be surfeited with more of what scientists call facts than the ordinary mortal knows how, or can know how to use. However, we agree that getting overmuch involved in ultimates is a mental handicap. Let us look at a few concrete examples of what skepticized thinking has produced.

### *Egoistic Musings*

In a magazine devoted to the popularizing of science, we read: \*

"Give us freedom to face the facts as they are! We need

\* "Science Digest," February, 1951.

not expect that the race will survive forever, any more than that we shall survive forever as individuals, but we may then hope that both as individuals and as a race we may live long enough to bring into the open those potentialities which lie in us."

This quotation from Norbert Wiener is a typical example of egoistic musings. It implies a tinge of mentality evaluations but it is couched in very general terms. It begins without integrated significance and ends without integrated significance. It appears to be a statement by an individual who acknowledges no responsibility toward his fellow-man or toward his creator or even toward his own mental integrity. He pleads for his fellow-man, and/or his creator to give him what he wants, and then says, "We need not expect that the race will survive forever, any more than we shall survive forever as individuals." These words, "any more than" permitted this skeptic to *ignore* that whole chain of living phenomena that characterizes the difference between an individual and a race. His mentality must have been *out*, when he made that statement; because if his mentality habitually is not able to see any distinction within a range of such large differences as exist between an individual and a race, he could hardly make much headway in the manipulation of concepts in cybernetics, which is his specialty.

I do not know Norbert Wiener personally, but I do wish my readers to understand clearly that any statements which I may make relative to any quotations in this book are not intended to be an integrated estimate of the personality behind the quotation. One of the vicious elements in modern critical thinking is the attempt to discredit an idea by villifying the personality or other assumed source of such an idea; or conversely, the dis-

crediting of a personality by analyzing out of context some particular statement which he made on some particular occasion. Every serious minded person should be willing to assume the responsibility for the statements which he may make, but one does not always speak with the same intent of elucidation nor with the same degree of earnestness in his speech. Mental integrity demands thinking directly about an idea in terms of its own intrinsic qualities.

Returning to a further mental analysis of the above quotation, the first sentence, "Give us freedom to face the facts as they are!" Surely this must represent somewhat of a compromise in the mental integrity of the person who originated it. Surely Wiener has had enough access to scientific documents during the past forty years to convince him that the number of facts which we know, about life at least, is very limited relative to the number of facts which we do not yet know about mass-energy relationships that are capable of producing perception. How then, could the freedom to face the few facts which we do know, while neglecting all of the facts that we do not yet know, be a very comprehensive basis for a theology or a philosophy of life?

Approaching this sentence more directly from the standpoint of mentality engineering, what does the word "face" imply? Who is facing what? The facts do not speak to you. You observe the physical representation of a fact and this forms a concept in your mind, and this concept is the only thing that your mentality can deal with. Even a string of factual concepts, especially if held together only by an impromptu thread of imagination will not get you much of anywhere. The concepts must be arranged in sequences which mean something and mentality is the only functioning medium available to



arrange such sequences. This emphasizes again the necessity of unyielding integrity in psychic deductions if we hope to do creative thinking about thinking.

If we try to think of the functioning processes of mentality as being eventuated merely by imagination the last sentence above does not mean much; because, asking for fidelity to an imagination immediately raises the question, which end of that imagination? However, if perception is accepted as a *bona fide form of energy* within this universe in which we live, it may be advantageous to proceed to inquire into how perception may be produced and utilized within an energized field of mentality.

Wiener's closing phrase, ". . . to bring into the open those potentialities which lie in us," does not say much. Did not the dinosaurs bring into the open the potentialities that lay in them? Or did they merely integrate the potentialities which grew up with them? But, haven't we any more mentality to bring to a determination of our mental outlook than the dinosaurs had to bring to a determination of their outlook? The dinosaurs probably did not do much thinking about their species continuing on forever; and apparently Wiener was not disposed to do much more thinking along that line than the dinosaurs did.

Merely to bring potentialities into the *open* is not integrating those potentialities into anything that might have value either to the skeptic himself, or to his fellow-man. Moreover, to those of us who have lived through two world wars, and are even now living under the threat of a third world war, the mere bringing of potentialities out into the open does not give us much assurance that these potentialities would be in accord with the natural imperatives within a mentality field, much

less that they would contribute constructively toward the amelioration of present mental confusions.

Out of the skeptical welter in our scientific era a mushroom philosophy grew up which paradoxically insisted that it ought to be possible for an egoistic mind to direct a pragmatically social animal so that in time we should have a more orderly recognition of human rights. When the ego speaks, however, as in the above quotation social considerations are apt to be absent; "we need not expect that the race will live forever any more than we shall survive forever as individuals." A very minimum of social thinking along the line of mass-energy relationships should have convinced the individual who made that statement that if the race to which he belonged had not survived for a much longer time than he as an individual collection of mass-energy relationships has any possibility of surviving, he would not have been present to make that statement.

Cybernetics is a new field in scientific engineering, devoted to the making of things automatic. Norbert Wiener is one of the leaders in this field of scientific engineering. In one sense the desire to make things automatic seems to be taking such a hold on many minds devoted to the development of "scientific" gadgets that the trend of our whole scientific era seems to be bent toward the making of everything automatic as rapidly as possible; in order that mentality can be dispensed with as far as possible. This push-button era of decreasing mentality in a mechanistic age might be likened to a helical spiral which rises with ever decreasing diameter as physical knowledge increases toward an apex of vanishing mentality.

Turning our attention toward a philosophical approach to thinking we might record here another sample

of random thinking, which is supposed to have some relevance to philosophy. Some scientific skeptics are fond of pointing out that philosophers not only disagree, but, "they cannot agree on what it is that they disagree about;" as if this clearly illustrates the futility of philosophy. Such scientists would rather remain ignorant than to inquire into anything which they cannot as yet *define* within limits that are satisfactory to themselves. In other words, whatever lies outside of their methods of approach to mentality is anathema to them.

### *John Dewey's Philosophy*

"Reconstruction in Philosophy," was first published in 1920. John Dewey begins his first chapter with these words: \*

"Man differs from the lower animals because he preserves his past experiences. What happened in the past lives again in memory. About what goes on today hangs a cloud of thoughts concerning similar things undergone in bygone days. With the animals, an experience perishes as it happens, and each new doing or suffering stands alone."

Most animals are not quite as "inexperienced" as the last sentence here indicates. In regions where water is scarce the animals soon learn by experience where the "water hole" is; many animals have a rendezvous from danger, as the cat or the squirrel will run for a tree when the dog approaches; also, a wild animal which has been shot at and wounded usually has had experience enough to run away when a man approaches, whether the man has a gun or not; but a crow is usually not much disturbed unless the man has a gun.

\* "Reconstruction of Philosophy," by John Dewey, The Beacon Press, Boston. An enlarged edition was brought out in 1948. This enlargement consisted primarily of a forty-page "Introduction" to the earlier edition.



Also, why does an animal select the food which it eats, and reject the food which other animals eat? Is it because of experience or instinct? In either or both of these, memory plays a large role. But, *is instinct anything other than memory kept in cold storage so that it will not deteriorate?* Does not instinct appear to be memory transmitted by inheritance? Whether man's memory is better, in the sense of being longer and more accurate, than that of some animals is an open question because man has devised so many ways of assisting his memory. There is an old saying, "The elephant never forgets."

The dictum that, "Man—preserves his past experiences," is true enough, but as compared with the lower animals the distinctive manner in which he preserves those experiences is through "history," here generically used to include all records and markings outside the mind to assist the memory within the mind in carrying forward whatever of value, experience may have produced, rather than by imposing the total burden on the memory alone. The greater the number of these verified experiences, which promise to have value for future conduct, the greater must be the burden shifted to this historically carrying process, in order to leave the mind freer for devotion to its more fundamental activity of perceiving and organizing its perceptions so as to focus an illuminating ray of perception on the next step ahead.

### *Mind is More Than a Memory Box*

The mind is something more than a memory box; it is a perceiving, integrating and interpreting device, to mention only a few of its activities. Dewey extols change and activity in the physical world, but when he approaches the mind he is more cautious. It would be a calamity for Dewey to change the "model" of his mind

between the first page and the last page of his inquiry; although about half the text between those pages is devoted to an attempt to change the minds of others. Activities of the mind, relative to itself, are not a direct concern of his inquiry, except insofar as the physical activities outside of the mind may affect the mind.

Our engineering approach to the mind, on the other hand, is directly aimed at understanding the mind as a "going concern." How did the mind get the initial "capital" to build its own factory? How does the mind take in raw materials, refine those materials and combine them into finished products, in the form of new concepts, which were never known on land or sea before; and yet, when tested, prove to be the "real stepping stones" to progress? What are the perceiving, analyzing and integrating possibilities of the mind? It should be possible to learn something about these mental activities so that we can more effectively use them. We know that these mental activities require energy to operate them. That confirms our belief that reaching mental conclusions involves energy for rearranging concepts. This is a sufficient stimulus for our mentality engineer to continue his inquiries.

### *Mind as an Integrating Device*

The mind is primarily an integrating device, rather than a weapon of attack. Simple arithmetic may serve to exemplify the fundamental idea. If one deposits a check in the bank he *adds* the amount of that check to what is already in the bank to get the *integrated* amount of what he has in the bank. Or, if one writes a check and draws money out of the bank he *subtracts* the amount of that check to get the *integrated* amount left in the bank. The mental procedure here is the important thing.

When one wishes to know the amount of money in the bank, it is the integrating processes that are important. Instead of thinking about having a certain amount, plus another amount, minus another amount, one only needs to think about the *integrated* amount of *money* in the bank. The burden of both memory and perception is greatly reduced.

Faith and integration are far more effective implements for improving mental procedures, than are doubt and analysis.

Dewey, in his "Reconstruction in Philosophy," fails to set forth either of these two vital concepts in anything like the full stature which they should occupy in any serious attempt to outline and evaluate mental procedures. Much less does he envisage the importance of this team of concepts in all creative thinking. This neglect leads to ineffectual conclusions at many points in his philosophical writings.

### *Drifting into Error*

Judging by Dewey's own introduction to the latest edition of his *Philosophy*, he did not change his mind in twenty-eight years. That was a long time to remain in a scientific rut. He apparently was riding in a 1920 philosophical automobile, and realized that the philosophical hills ahead of him were steeper and higher than those behind him; but he still had hopes that by backing up the hill behind him so that he could gather momentum as he coasted down that hill as he approached the hill ahead he could make the hill ahead; almost at least, and if not quite, perhaps the "experienced" residents near the top of the hill would "spontaneously" give him a *push* which would get him over the top.

The above free-hand interpretation of Dewey's pro-



cedure is intended to reflect something of his easy-going disposition. Max Eastman who was a student under Dewey and also for some years an assistant to Dewey, makes the following comment, relative to an emotional experience which Dewey had a few years after he graduated from College: \*

"When he tried to convey this emotional experience to me (Max Eastman) in words, it came out like this: 'What are you worrying about, anyway? Everything that's here is here, and you can lie back on it.'

'I've never had any doubts since then,' he added, 'nor any beliefs. To me faith means not worrying,'"

If the engineers, who used their minds to lead engineering forward, had leaned back on this philosophy, they would not have made much progress. These engineers had to have faith that things could be better tomorrow, or next year, or in the next decade, than what existed at the time they were making their mental deductions. The engineers had to search for that measure of validity which was within the concepts that were in their own minds, by testing and selecting; then by further testing and by further selecting.

Dewey's lack of a dynamic faith was mirrored forth in most of his writings; and he was a prolific writer. Something of his easy-going drift can also be envisaged from the following quotations from the closing pages in his, "Reconstruction in Philosophy":

"A certain amount of overt confusion and irregularity is likely to accompany the granting of the margin of liberty without which capacity cannot find itself. But socially as well as scientifically the great thing is not to avoid mistakes but to have them take place under conditions such that they can be utilized to increase intelligence in the future . . .

\* "Saturday Review of Literature," January 17, 1953.

by the courage of intelligence to follow whither social and scientific changes direct us."

Reversing the order in the above quotation, I should say that "intelligence has followed whither social and scientific changes have directed us" during the past few decades, and we are now *experiencing* the "overt confusion and irregularity" referred to in the first line quoted above. The difficulty appears to be that intelligence did not get much "overt" *direction* from either society or science except in the form of individual suggestions. At least, neither of these attempted to make any organized statement as to how one might know intelligence when he came face to face with it; neither of these outlined a basic theology which might give one a clue to what intelligence might be; neither of these presented any norm by means of which one might estimate that measure of validity which might be in those concepts that happened to be in one's mind at any particular time. Of course, we have had social organizations and scientific organizations but none of these directed its energies collectively toward any method for measuring the perceptive capacity within a mentality field.

The setting of the word *experiencing*, in my statement above, illustrates the sly delusion that *the omission of time* often causes in the minds of the enthusiastic devotees of experience, who accept experience as the *only guide* to a solution of the problems of life. Socially, conclusions are often drawn before the experiment has continued long enough to fully evaluate the assumed factors involved; and scientifically, results are tabulated one day, and their trend is extrapolated into the future where other factors enter into the integration of that future, which were left out of the experiment when the tabulated data was recorded. The *lapse of time* is an ever

present factor which cannot be ignored while life continues. The efficiency of the transformation of mental energy into a valid perception is the determinative factor one is looking for when projecting an idea into the future. Traditionally, this is dynamic faith, which contemplates all the factors, insofar as they can be known in a present time and place, in evaluating a venture into the future.

The first sentence in the above quotation, "A certain amount of overt confusion and irregularity is likely to accompany the granting of the margin of liberty without which capacity cannot find itself," is not a sound mental engineering presentation. This is an evasion of the problem. Engineers do not develop "capacity" by using "overt confusion and irregularity." The engineers eliminate confusions and irregularities. Of course Dewey intended to imply that these things would disappear when "capacity finds itself." This is an excellent example of trying to get ahead by "trial and error"; one states the "error" and leaves the solution of the problems to someone else. Drifting into the habit of condoning error does not validate the mental error of assuming that "erroneous" thinking may evolve into mental integrity.

The engineer does not expect "capacity" to find itself in a power-plant. He knows that it is up to him to design the power plant, install and arrange the machinery in that plant and then to supply fuel for developing the energy to operate that plant. In short, the developing of *capacity* requires planning, coordination and a supply of energy. This is too much to leave to the imagination. One does not find out how to make steel simply by observing that the manufacturing of steel produces some *slag*. Science itself would not have gotten very far with such a lax procedure as many scientific minds are



willing to assume that society ought to be able to get along with.

### *"Change" is Elusive*

Science has its limitations, but it has given us many procedures of real value. Scientific procedures have been predominantly specializations of one kind or another. The best of the scientists, however, have been unable to make "change" conform to any law of specialization. In other words, "change" *per se* refuses to be circumscribed by experience.

In "Reconstruction in Philosophy," we are advised that:

"Knowledge is power and knowledge is achieved by sending the mind to school to nature to learn her processes of change."

This statement would have been more comprehensive if the last two words "of change" had been omitted; or, if instead of omitting these two words we add three more words, *in the mind*, we should have an even more meaningful statement when approached from the standpoint of mentality engineering.

Dewey contends that it is only through *change* that we can know anything. He is obsessed with the dominant scientific spirit of his day, action and more action; "we don't know where we're going but we're on our way." Most philosophers attempt to deal with the processes of the mind as activities of the mind; but Dewey apparently would reconstruct philosophy so as to deal primarily with activities outside of the mind; at least all hypotheses should be tested outside of the mind.

This last phrase introduces us to a peculiar attitude of the Dewey mind. According to the phrases quoted by

Max Eastman, Dewey conceived of his mind as being a kind of casual observer with no "belief" and no "faith," he simply looked at things as they appeared in front of him. Of course, Dewey could not live his whole life on the level of this causality but he apparently did not "worry" much about a dynamic faith rooted in the continuum of time. In the following quotation we have a dual revelation, first of an abiding faith in his own mental deductions, and second the rejection of an abiding faith in mental deductions made by anyone else:

"It is no longer enough for a principle to be elevated, noble, universal, and hallowed by time. It must present its birth certificate, it must show under just what conditions of human experience it was generated, and it must justify itself by its works, present and potential."

It is not clear how Dewey conceived that his mind could move from the "present" into the "potential" without possessing in some measure genuine faith rooted in time. He apparently did not give much thought to this phase of the above quotation, but it sounded good and he allowed it to stand, while placing greater store by the essence in the earlier part of this quotation. The earlier part places an increased load on the "memory" which, as previously pointed out, was already overloaded in his opening paragraph.

This does not mean that Dewey leaves nothing for the mind to do; oh no, his penchant for activity is satisfied by insisting that all factory and laboratory space in the mind should at all times be so completely filled with raw materials that there is no room for mental machine tools or mental testing equipment of any kind. If any ideas are submitted, even as raw materials, they cannot be admitted as raw materials unless they "present their birth certificates" to prove that they are legit-

imate descendants of approved raw materials. The checking of all incoming ideas to see that they conform to these specifications, the preparation and dispatching of hypotheses to be tested, and the receiving and digesting of the reports relating to these tests provide a sort of merry-go-round action for the mind, without getting anywhere in particular insofar as mental progress is concerned.

Of course no progress can be attained without some change or movement, but it is equally true that no practical progress can be attained by mere change or movement. Usually both the speed and the direction of a movement must be controlled for practical purposes; also there should be means to start and stop a movement. For example, it is not practicable to ride on a shooting star. One prefers an automobile; which has means to propel it; means to control the speed at which it travels; a steering wheel to control the direction in which it travels; means to start it; and means to stop it. These are a very minimum of functions which must be fulfilled, and yet they require hundreds of *parts* which are held in *fixed* locations relative to each other; and hundreds more which move in *controlled* relationships to each other when an automobile is moving.

A prospective buyer does not refuse to ride in an automobile until after he has scrutinized the "birth certificate" of each and every one of the thousand and one parts which were assembled to constitute that automobile. Also, the engineer tests an automobile as an integrated vehicle to see what performance he can get out of it, without conscious reference to a multitude of "birth certificates".

Likewise, the mind must continually deal with and test integrated concepts directly, without reference to,



or immediate perception of, all of the previous mental reactions which may have had something to do with the construction of the integrated concepts under direct consideration. The value of mental integration was pointed out above with reference to one's bank account. Integration is equally, or even more valuable, with reference to one's "bank" of mental concepts.

Dewey, apparently, did not think comprehensively enough to become aware of the elusive character of mere change. The "birth certificates" of sodium and chlorine do not help much in predicting the *changes* which will occur when these two elements unite to form common salt.

Moreover, there is a long list of alloys, which are useful in engineering constructions, whose characteristics cannot be predicted by inquiry into the quantity and quality of the ingredients which compose those alloys. For example, steel may be more than ninety-nine percent iron, and yet, the selection and proper proportioning of the ingredients composing the remaining one percent gives the engineer a variety of steels, each having a specific quality adaptable to a particular use or uses. Likewise, aluminum alloys which contain fifteen percent or less of other ingredients alloyed with aluminum give that alloy a strength and dependability which pure aluminum does not possess.

This process of alloying is so important that by far the larger portion of the science of metallurgy is devoted to the study and development of alloys. These alloys can only be developed by trial and selection, and their quality can only be known by testing the integrated alloy, irrespective of previous knowledge relating to the independent behavior of its ingredients.

In the light of the evidence accumulated above, it

seems justifiable to say that whenever a principle, which is "elevated, noble, universal and hallowed by time," presents itself to the mind for inspection it most certainly should be accepted as an integrated concept and worthy of full consideration as such, and should be tested relative to the entire field within which it purports to be an integration. It should not be jostled aside by purported more accurate information relating to some unintegrated stone in a corner lot of that field. The engineer does not discontinue the use of an alloy which he knows to be good, just because some metallurgist thinks he could make a better alloy with *improved* ingredients; no, the engineer demands an integrated alloy so that he can test it as a substitute for the good alloy which he already "knows", and if the new alloy is not distinctively *better* than the old one he sees no reason for changing.

"Change" itself is only "known" by some *integration* which defines or measures the *change*. One sees an animal moving across a field; how does he know the animal is moving? Because the animal is moving toward or away from some fixed object in the field, such as a shrub or a tree. Or we say, a particular vegetable is growing in the garden; how do we know it is growing? Well! The leaves are green. This brings up an association of ideas that produces a mental integration which would be a satisfactory answer for most ordinary individuals. A skeptic might insist that some measuring instrument, which was made possible only by some previous mental integration, be applied to the vegetable and a mental reading noted and recorded; then, sometime later, the next day or the next week, the same instrument should be applied to the same vegetable and another reading recorded; if the two recordings are not identical, then the subtraction of the lesser one from the larger one gives

a mental integration which indicates that a *change* did occur; and, it is probably safe to *infer* that the vegetable is growing. It should be noted, however, that this inference depends for its validity upon a tacit acceptance of the ordinary concepts of space and time, as well as the acceptance of the mental deduction that space *was traversed* as *time elapsed* between the first and the second applications of the measuring instrument.

The activities of the mind cannot be ignored or separated out of any process of "knowing". *Mentality is inseparable from knowing*. Mental activities precede, propagate and integrate all knowledge. All attempts to replace mental activities completely by physical "objectives," even if supplemented by mechanical contraptions, have failed dismally when substituted for mental deductions. Please note, that I am not objecting here to the embodiment of mental concepts in physical objects; this may be very useful, but when that occurs it signifies physical progress through the instrumentality of antecedent mental progress.

Dewey apparently recognizes the validity of only about half of this last statement; but the half which he does not recognize should form the basis of any really constructive philosophy. He seems to grant that the mind must lead; then he loads it down with such a burden of "objectives" that its own freedom of movement is cramped and sluggish, as already pointed out; next, *all hypotheses* formulated by the mind must be tested *outside* of the mind. Does this mean that the only instrumentality which we possess that can in any degree forecast progress is tied to the past and must "back up" to be tested by the past?

If philosophy expects to retain a niche in the human



mind, it must *at least outline* some method by which one mental process can be evaluated relative to another mental process within the confines of the thinking processes themselves. Of course, something of this kind does occur in every creative mind; otherwise, how can a man by thinking, reach out ahead of everything else in the world? Some thoughtless person may answer, "by Chance." Only a little activity of the mind is required to reveal the inadequacy of this reply; if the mind of man reached out ahead only once in a million years or so, we might credit chance with a chance, but there is no multiplication table in the category of chance; therefore, when history records an ever increasing number of forward steps, taken within a given period of time resulting from mental activities, it would seem to be a sound conclusion to infer that *the mind has a unique capacity for reaching forward*.

If we substitute wisdom for knowledge and paraphrase an earlier quotation from Dewey so as to read: Wisdom is understanding and wisdom is achieved by sending the mind to school to living phenomena to learn her processes of changes *in the mind*, we have a more direct setting forth of what should be the motivating idea within a comprehensive philosophy. A comprehensive philosophy should deal with the study and interpretation of its activities in terms of living energies directed toward the evaluation and integration of *changes in a mind itself*.

This thesis postulates that all changes whether physical or mental occur within mass-energy relationships. These relationships are changing within the very activity which is producing change. Engineers have learned how to release energy, as in the cylinder of an engine,

so as to produce useful work. Can we likewise learn to release mental energy to arrange and integrate concepts so as to produce useful thinking?

### *Scientific History in the Making*

Let us review an historical estimate of where the mind of man now is, by a *liberal* scientific skeptic; at least one who is liberal to the extent of being willing to comment on some of the theoretical implications of our modern mental confusion. I refer to, "The History of Nature," by C. F. von Weizsacker. The title of this book is misleading; a more appropriate title would have been, "A History of a Scientific Concept of Nature." A formal history is always a compilation of those ideas which the historian thinks should be of interest to his readers.

Our interest here in von Weizsacker's narrative is to see if we can discern, first of all, any trend in his mental approach to history which reveals any prejudice toward any particular school of learning. The overwhelming evidence is that his approach is scientific. This is why I have suggested that the word "scientific" should appear in the title of his book.

On the first page of his introduction, after admitting some of the limitations which specialization in the sciences entail, he says: \*

"Specialization does not spring from accident, or from a whimsy of the scientists, but is a fateful consequence of the very character of science."

"Specialization" has been the predominating characteristic in scientific procedures, which has led to the narrowness of the general mental outlook in the world today. The whimsy of some scientists may have led to

\* "The History of Nature," by C. F. von Weizsacker, The University of Chicago Press, 1949.

extreme specializations on particular occasions, but the main body of scientific specialization shows a regularity in procedures which indicates that the "character of science" has had some *planned* direction. Of course the results which have been obtained within each field of specialization depended on nature; but *the restriction* of the scientific fields of investigation has been a responsibility of the scientists, individually and collectively. Insofar as there is a "fateful consequence" in the very character of specializations, that "fatefulness" was put there by the scientists; aided and abetted by their followers. Why were so many of them interested in the *fall* of an apple, and not in the *growth* of an apple?

This *fatefulness* has had two deadening influences on any forward mental urge during our scientific era. First, it implanted in the minds of many people an idea of finality, often leading to the acceptance of that finality as absolute knowledge. This led to an inflated idea of the intelligence which one already possessed. When this inflated intelligence began to shrink to something like its true value, it led to disillusionment and despair. Second, this fatefulness led to a restricted mental outlook in both scope and direction. The scope of mental activities was restricted because *specialization* was represented by skepticized minds as being *the* method of obtaining true knowledge. The direction was restricted by insisting that mental activities should be confined to the study of what happened in the *past*, because *experience is our only reliable guide*; instead of focusing some attention on those mental activities which alone can project a perceiving ray into the future.

Moreover, the general influence of this fatefulness has functioned as a "mushroom" theology, and that theology was *impressed* on the minds of a multitude of boys and



girls during the last half-century. Some may object to the word "impressed," but I think it is none too strong, because the traditional "scientific methods" set up a sort of a dictatorship of the scientifically *known* over the scientifically *unknown* within the minds of the mentally immature. This mushroom theology decrees that the mind is free only insofar as it indulges in no thoughts which transcend the dictatorship of the physically demonstrable. The mind is free to imagine anything, just as long as it commits no overt act which indicates that that mind is making decisions independent of due acknowledgment of the sovereignty of materialistic deductions.

Could any religion be more dictatorial in demanding the recognition of its God? There is one marked distinction, however, between religion and science; religion endeavors to instruct its devotees in ways and means of improving their conscious grasp of the potentialities of the mind; on the other hand, stark science is quite content to devote itself to its own mentally "elect" without attempting, in any organized manner, to account for the mental potentialities of those minds. Somewhat paradoxically, however, mathematics is the scientists' "Bible" and rigorous training is required in that bible because it helps to discover some things about the physical sciences. As Weizsacker puts it:

"When we understand a mathematical law of nature, we understand as much of nature as can be understood at all."

This statement, being interpreted, means that if one thinks only in terms of mathematics his thinking will contain nothing but mathematical deductions. Mathematicians are the high priests of science. They rule with an *iron hand* the mental activities of the populace inso-

far as all mathematical interpretations are concerned, but otherwise the populace is free to imagine whatever it likes.

The blase assumption by some scientific skeptics that there is nothing dogmatic about scientific procedures reveals a limited mental perspective. They seem to think that if they explain in detail how another person can conduct an experiment so as to arrive at exactly the same result as that which they obtained, that that absolves them from any taint of dogmatism; whereas, it may only distract the attention of another from performing an experiment in a different way, which might show a different trend, and thus upset a dogmatic sequence.

### *Dogmatic Procedures*

A scientific dogma, like any other dogma, rests upon a human conviction that it embodies *the only trustworthy* approach to the Truth. Dogmatic disciples have one characteristic that is common to them all; they all believe that whatever happens within their own dogmatic domain is the inexorable law of Nature, or of God; or whatever other term they may use to denote Ultimate Being. The dogmatist never assumes any responsibility for anything that *seems inevitable to him* within the domain of his Ultimate; thus it is that Weizsacker, and many another skeptical scientist, cannot imagine that at least some of "the fateful consequences" resulting from specializations might have resulted from general deductions made from specialized data.

Of course, *scientific-theology* and *astronomy* are specializations of a sort; and astronomy could hardly be pursued very advantageously without mathematics; but mathematics is hardly a mode of thinking which could yield much of immediate value in an inquiry into

scientific-theology. Therefore the Weizsacker deduction that, "When we understand a mathematical law of nature, we understand as much of nature as can be understood at all," can hardly be universally valid. I wonder if he would subscribe to the dictum that, when one understands the mathematical laws which regulate the velocity of the fall of an apple from a tree, that that person understands as much about growing apples "as can be understood at all"?

Our mentality engineer, on the contrary, is quite certain that our mental processes, by means of which we may observe and interpret the processes of nature, are not limited to one dogmatic procedure; even though that procedure may be as diversified as mathematics. "Perception" is required to formulate mathematics, but the scientists hesitate to ask how nature produced the capacity to perceive mathematics, because mathematics has not yet revealed to the scientific mind how that mind can mathematically ask that question.

The mental shocks and derangements which humanity experienced during and after two World Wars, were sufficient to convince some skepticized minds that perhaps their traditional scientific approach to the mental processes had been a bit too rigidly exclusive. Weizsacker is to be classed among these. After stating the first declaration of his scientific catechism:

"Others may sense, believe, profess . . . the scientist inquires. He believes only where he knows . . ."

Weizsacker repeats the word "believe" and even the word "miracle" a great many times in his book. A quarter of a century ago if any scientist had dared to refer to a "mutation" as a *miracle* he would have been guilty of a scientific indiscretion. In those days the scientist did not



know what a mutation was any more than he knew what a miracle was, but in his imagination a mutation was not the same as a miracle, and in order to keep science differentiated from religion it was distinctly advisable to use mutation rather than miracle. On the other hand, Weizsacker now uses the word "miracle" so promiscuously as to be disconcerting. For example, he insists that if we examine a great variety of natural phenomena relative to their unknown essence, "—we shall see exactly the same miracle."

" . . . I believe, we should approach the ultimate truth that will remain to us as we go back into the history of nature: the mathematical law of nature. . . . On the other hand, our knowledge of the laws of nature, and of the limits of their validity, is based exclusively on experience. . . . Are we not caught up in circular reasoning when we test the laws of nature by the remains that we can interpret only with the help of these self-same laws? This seeming circle, however, is of the very essence of the methods of the natural sciences generally."

### *Circles or Wheels*

This tendency to "reason in a circle" is due to a limited overall perspective. This same limitation in perspective leads to an attempt to classify ideas under two separate headings: subjective and objective, or man and nature. These are both *unnatural* divisions. Certainly man is within nature, and not outside of it. Also, any concept of truth which we may have is in some sense perceptive, no matter how objective we may consider the evidence to be on which that truth is based.

At many points in his discussion Weizsacker recognizes the dilemma of the subjective and the objective; but I cannot see that he makes much headway in resolving it. His solution is to consider one half of a circle as

objective. My observation here is that a circle is not a symbol of progress. A circle is more like a symbol of a "dog chasing his tail." Also, it appears to me as if he draws one half of his circle in *ink*, and the other half with a *lead pencil*,—even his circle does not signify continuity to me; then he insists that by going "round and round" this circle we may perhaps, eventually, recognize the substantial content of the circle.

A circle might suggest to an engineer the idea of a wheel; but the engineer would have to put spokes and a hub in the wheel; an axle in the hub; then he would have to have at least two wheels, and preferably four, on which to mount a body of some kind, before he would have a *vehicle*. Even then, he would have to have a horse or an engine to propel the vehicle, and a road to travel on, before he could get very far ahead of where he started. This again emphasizes the idea of the number of correlating concepts which the mind usually has to engineer to produce an integrated concept of sufficient magnitude to insure a mentally effective forward movement. It should be recalled here that this thesis is based on the fundamental assumption that perception is a result of mass-energy relationships, and is a *subtle* form of energy acting to propel all mental activities. Concepts are formed by integrating mass-energy relationships sufficiently to produce some insight.

### *Splitting Nature Before Thinking*

By way of contrast, Weizsacker summarizes conceptual thinking thus:

"Conceptual thinking has split the original unity of man and nature into the opposition of subject and object. The circle of which I am speaking is meant as the first, though perhaps not the last step in a direction which should once

again make the unity of the two opposites accessible to our thinking. Only when we understand clearly and in detail the dependence of man upon nature, and of the concepts of nature upon man, only when we have rounded the circle many times, only then, at best, may we hope to see reality as one, science as a whole."

Why was the *original unity* of man and nature split into this opposition of subject and object? I suppose from the standpoint of specialization it seemed necessary. However this predicated "opposition" arises from an assumed separation of mentality from the ordinary processes of nature; but this opposition is in no-wise apparent in the original unity. When man predicates separation between himself and nature he is only exposing his ignorance of the fact that he is *inseparable from nature; except in his own imagination*.

The popular idea of man's conflict with nature results from hasty conclusions drawn from incomplete information,—man mistakes a conflict between some of his personal desires and certain imperatives of nature as evidence that there is conflict between himself and the totality of those forces and substances by reason of which he exists. Man has to struggle, of course; he must have something to give him character and poise, otherwise, why live at all? An individual can struggle, but an opponent must also be present to provide the setting for a fighting mood. By the use of his imagination man divides himself into two parts, and then imagines that the two parts must necessarily fight against each other for supremacy, when the real difficulty lies in the fact that man fails to understand and integrate himself as a whole.

Instead of splitting nature into two parts before we begin to think, why not try thinking before we split



nature? Let us permit nature to remain whole and complete, at all times, and try to realize that if our concepts do not yet fully explain nature, the lack in our comprehension probably resides in our own concepts rather than in any incongruity in nature.

### *The Known and the Unknown*

The scientific contention, expressed or implied, seems to be that scientific deductions should be accepted as a sort of *proprietary truth* until those deductions can be replaced by later, and more inclusive deductions. This would be all right, if it were taken in its proper stride, but too often, "relative" facts are not labelled as such. We need some "Pure Fact Laws" to require the placing of content labels on facts as well as on drugs. The habitual practice is to call a fact a fact, irrespective of how limited the environment may have been from which that fact was deduced. Immature minds have no standards of reference by which they can determine the relative value of facts which have been collected from so many different sources that they often have very little relationship one to another.

The specialized sophistry continues by insisting that that which gives promise of becoming more definitely known is *more important* than that which gives promise of being less definitely knowable. This ignores human evaluations. Moreover, a scientific investigation directed toward the obtaining of additional scientific data relating to a topic that is already grounded on some scientific data, usually takes precedence, in the mind of the skeptic, over any field of investigation in which, as yet, no scientific data is available. Thus the scientific agglomeration grows by adding data to data, without even asking the question whether the scientific approach includes

those things which are most important in the development of the larger potentialities of life.

The mentality of man is being buried alive beneath a vast sedimentary deposit of factual data which is devoid of comprehensive integrations directly related to mental development. Is it any wonder that many individuals who, after reaching a physical age which should include mental maturity, can only attempt to justify their mental deficiencies by repeating the elusive slogan, "It is better to stick to the devil you do know, than to try the devil you don't."

### *What about the Future*

In the last fifty pages of his History, Weizsacker discusses, "The Soul," "Man: Outer History," and "Man: Inner History," but I cannot see that he adds much, if anything, toward the clarification of the mental confusion resulting from the splitting of nature into the subjective and the objective. He does not seem to make much headway in outlining mental procedures which might reveal a pathway leading to a brighter future for mankind. Apparently, he recognizes this himself, when on the last page of his book he says:

"The battle is still raging. We are in the midst of it, at a post not of our choosing where we must prove ourselves. I shall say nothing of the future. We do not know the future—rather, we are to act in it. But practical questions I did not mean to treat."

I, for one, am not willing to resign myself to such a hopeless, *stand still*, attitude; but I should like to go back to page 164 in Weizsacker's narrative to pick him up on one point of procedure which I think may have had a deciding influence on his lack of determination in approaching the future. He says:

"... in the various civilizations, we have before us here two movements, the rising, and the falling. The rising movement is as intelligible—or as mysterious—as the rise of man himself. On the new levels of social order and of the mind, it follows the same path from simplicity to differentiation that we witness in the history of nature generally. The 19th century faith in progress spent itself in the contemplation of this phase. For the moment I shall not discuss it further. For I am convinced that we shall achieve a far profounder understanding of the driving force of the ascent if we first study the second phase, the decline."

This last sentence is a counsel of *error* and *despair*. What could be more devastating mentally than to insist that in order to understand how we perceive anything we should first study how the body dies? This is like recommending to an engineer that he should study *the decline in the efficiency* of an old steam engine in order to learn *how to design* an electric generator. The study of the decline of a civilization may show how the *length of that decline* may be extended, but it can never reveal how a superior civilization can be built. Creative achievements require that something must be added, or subtracted, from what was there before. This something may be small, but it must be something which leaves an integrated whole that has a quality that that whole did not possess before.

### *Dilapidated Ideas*

Everything that grows seems to begin to disintegrate soon after growth ceases; but that does not mean that the disintegrating process goes through, in reverse, all the *steps* which the integrating process passed through. An apple disintegrating in the open air does not go through all the steps in reverse that were required to integrate that apple in the open air. This seems almost



a truism; but skepticized minds sometimes jump to unorthodox conclusions.

However, inasmuch as skeptical minds are often vexed and a little annoyed at having a problem of life abruptly presented to them, let us look at a simple razor blade. If a razor blade is thrown out of doors, simply to rust out, the gradual return to iron oxide does not give much information about how that blade was made. Also, the first time a man shaves with a razor blade the decline of that blade has already begun; even in the cutting of a man's beard only once the pristine edge of the blade is worn off. Certainly, when anything wears out, that process in no-wise exemplifies the manner in which it may have been made.

The ordinary procedure to find out how a razor blade is made would be to dissolve that blade in some acid, preliminary to the making of a chemical analysis of the elements out of which that blade is composed. But, unless this chemical analysis was a carefully conducted quantitative analysis the exact proportion of the different ingredients in its steel would not be obtained. Even when one gets the ingredients properly proportioned, there are still the problems of forging the blade, hardening and tempering the blade, and then grinding the fine edge on the blade. These latter operations are precision engineering operations for which it has taken many years to provide the precision instruments now used in producing razor blades such as are in daily use today.

After recalling all these things, one wonders how anyone could have presented this statement in such a positive form: *"For I am convinced that we shall achieve a far profounder understanding of the driving force of the ascent if we first study the second phase, the decline."* This, when taken in conjunction with an earlier state-

ment to the effect that: "He (the scientist) believes only what he knows," presents a mental conundrum which we must here leave, unresolved.

We may, however, offer a few ameliorating observations. Many people habitually assume that we may find out how to make things better by analyzing what is wrong. "Between you and me and the gate post,"—this "wrong" philosophy is what is wrong with our civilization. We are trying to get along with *repair jobs*, instead of trying to create a new civilization. Individually we are willing to have our automobile repaired a *few* times, but before long we shall want a new one. But, when it comes to ideas, if we can have a new automobile occasionally, we will jog along with our old ideas, dilapidated as they may be.

### *Fear of Changing One's Mind*

Many people are becoming a little apprehensive about the dilapidated appearance of their ideas. Others still do not care. But, the time will come, if it is not already here, when our old ideas will have to be sent back to the factory for a complete overhauling, unless we are willing to invest in some new ideas. When one tries to encourage the investment of any mental effort in a new idea, he immediately bumps into a deep-seated fear of changing the "model" of one's own mind. Relative to changing his mind, Weizsacker says:

"Religion is older than rational thought, and has not had too great a need of the assistance of rational thought. Skepticism has been the privilege of a few men of learning who could survive because around them stood a world of faith unshaken. Today, skepticism has entered the masses, and has rocked the foundation of their order of life. It is the men of learning who are frightened now. They fear that the surrender of religious immediacy has been too high a

price for rational thought. But we cannot go back. There is no honest retreat from rational thought into naive belief."

How about the *naivete* in many of the beliefs, which were at least temporarily present in the mind that wrote the above quotation? Perhaps, as a skeptic, he thought his *transient beliefs* did not count, no matter how smugly he used them to establish a partially integrated conclusion. He *did not philosophically justify* the privilege of using disintegrating skepticisms. Then, he used "faith" with a *static* significance only; forgetting the *dynamic* significance which faith has carried with it in many upsurges of mental buoyancy and achievement through the ages. He neglected to recall that "faith without works is dead."

How about looking forward and achieving some mental insight through genuine faithful thinking, instead of looking backward and disintegrating mentally through a process of *naive thinking* which was defensively referred to as "rational thought?" We hope "the men of learning are frightened;" if they are not, they ought to be. There is enough evidence of mental confusion in our present scientific era to convince unbiased investigators that any summation of the mental reactions in society today is something less than integrative. More than a little of this mental diffusiveness is probably due to the *naive assumption*, made by many skepticized minds in common with Weizsacker, that the "faith unshaken" which was sufficient to undergird whole civilizations, in the past, was *nothing but* "naive belief."

It may be engineeringly instructive to analyze the above quotation from Weizsacker in conjunction with two or three phrases from the preceding quotation from him in the light of their philosophical content. In his scientific activities Weizsacker was a specialist in astron-



omy but when he steps outside of his specialty, the reader is a little puzzled to know just what relevance his own statement that *he believes only what he knows* may have. These quotations appear to be of an imaginary nature. Their essence is divorced from time and their substance is adapted to the exigencies of the moment. "On the new levels of social order and of the mind, it follows the same path from simplicity to differentiation that we witness in the history of nature generally." In the last phrase of this sentence the reader should substitute "science" for the pronoun "we" so as to read, "that *science* witnesses in the history of nature generally." When thus amended, the quoted sentence throws some illumination on two tendencies in modern thinking which have produced confusion in the human mind. First, it is a tendency toward differentiation, while ignoring the part played by integration; and second, the *witness of science* in the history of nature while ignoring the *witness* of all other schools of thought relative to nature.

The next sentence, "The 19th century faith in progress spent itself in the contemplation of this phase," is apparently a figment of the imagination. The measure of validity in this quotation could probably be more faithfully expressed by saying that skepticism strangled the "19th century faith in progress" by the tactical maneuver of simply robbing that atmosphere of its mental oxygen, faith. The suggestion that faith spent itself is a clever ruse often used by a critic to distract attention from limitations in the critic's own mind, by suggesting the automatic destruction of an idea, when the critic does not have ready at hand a full explanation of exactly what did happen.

Weizsacker recognizes some of the limitations in skep-

ticism when he suggests, in essence, that skepticism is too dangerous a toy for the masses to play with; but, his comment hardly philosophically justifies skepticism as, "the privilege of a few men of learning." His strange reference to "religious immediacy" in its tied-in relationships is something of a puzzle. I presume he refers to the immediacy of insight which sometimes follows weeks or months or years of faithful contemplation of the evidence which relates to a particular subject matter; but, the setting in which he uses that word seems to imply that skepticism has no immediacy about it; whereas, the immediacy in skepticism is about as *immediate* as any semblance of activity in the human mind can be. Even in an imaginative mind skepticism occurs before any thought has been given to a particular subject matter or, at least, before very much thought has been given to that matter. Should any human mind be prejudiced in its approach to any subject matter by such an impromptu attitude against that subject matter based on such slight evidence?

The measure of validity which was within the moving spirit that propelled such imaginings could not have been very great. Or alternatively stated, the efficiency of the transformation of mental energy into validity here appears to be very low.

We must give Weizsacker credit for trying to think, after a fashion, about present mental confusions; but he mentally disintegrated the beliefs of others, and then only *partially* integrated his own. When he tried fully to integrate his own mental meanderings he found that it could not be done. This was because he *left mentality* out of his "objective" *scheme* of *things*.

His *split* in nature prevented a full integration. The functions in an equation could not be integrated with

something that was outside of that equation. He escaped into nothingness and nihilism, and then tried to extricate himself from that nihilism; but mentality engineering has no counterpart for such nonsense. Further reference to the inadequacy of nihilistic philosophy will be presented in the next Chapter.

### *Interpretations in Terms of Energy*

The vitality of mentality appears more as a form of activating energy, instead of being a promiscuous arrangement of factual particles. The electronics engineer is not so much concerned with how the metal particles are arranged in an electric generator, as he is with what he can do with the particular form of energy which the generator is capable of producing. Likewise, we should be more enthusiastically concerned with what we can do with a sensitized mentality field, than we are with an imaginary factual arrangement of the particles within our brain cells.

If we assume that the traditional scientific approach to mentality has been something akin to a photographing-analyzing-memorizing concept, then, our own approach, through the engineering of mentality, may be somewhat similarly characterized as a perceiving-integrating-achieving concept. We might refer to the first as an "existence" concept of mentality; and to the second as a "factory" concept of mentality. Neither of these would be a full definition of either; but they mirror a distinction. In the existence view skepticism might conceivably have some value. In the factory view skepticism appears as incombustible material in the fuel supply,—it must either go up the chimney in smoke, or fall through the grate into the ash pit.

If we try to evaluate skepticism in terms of energy,



instead of on a factual arrangement basis, we emerge with something akin to the following:

When mathematically perceived, skepticism is evaluated as a de-celerating force; and will appear in any formula in which it may occur with a minus sign before it.

When religiously perceived, skepticism will immediately be evaluated as spiritually inert. The moving spirit beneath any elevating lift here must be positively energized.

When engineeringly perceived, skepticism can only be evaluated in terms of function in an operative system. The most favorable evaluation would be as a "brake;" but brakes are useful primarily in preventing "breakneck" speeds while going down hill. We are here more interested in a mental engine capable of forward thrust. A general statement would be: Unless the propelling thrust of faith is greater than the retarding force of skepticism there will be no psychic hill climbing.

### *Skeptical Darkness*

Strictly speaking, when thinking is approached on an energy basis, skepticisms cannot be analyzed constructively. An absence of perception cannot be positively defined. Darkness is the absence of light, but how else can one define darkness? On this lead, many activities of the mind, during our skeptical era, might be classified as occurring in a twilight of fading perception between a sunset of faith and a nightfall of skeptical darkness. Even so, many minds in this fading light envisaged a program which they enthusiastically espoused in the belief that it was adequate to lead the human race out of its bondage to ignorance into a promised land of intelligence; but alas, "the *substance* of the things hoped for

and the *evidences* of things not yet seen” were not inclusive enough to bring the end results of such visions into full fruition.

Back in 1929, Percy W. Bridgman in a single paragraph gave to the world a graphic presentation of several phases of thought which often accompanied such a vision. He said:\*

“The physicist thus finds himself in a world from which the bottom has dropped clean out; as he penetrates deeper and deeper it eludes him and fades away by the highly un-sportsmanlike device of just becoming meaningless. No refinement of measurement will avail to carry him beyond the portals of this shadowy domain which he cannot even mention without logical inconsistency. A bound is thus forever set to the curiosity of the physicist. What is more, the mere existence of this bound means that he must give up his most cherished convictions and faith. The world is not a world of reason, understandable by the intellect of man, but as we penetrate ever deeper, the very law of cause and effect, which we had thought to be a formula to which we could force God Himself to subscribe, ceases to have meaning. The world is not intrinsically reasonable or understandable; it acquires these properties in ever increasing degree as we ascend from the realm of the very little to the realm of everyday things; here we may eventually hope for an understanding sufficiently good for all practical purposes, but no more.”

The reader is here asked to recall my quotations from Arthur S. Eddington under the heading of “No Skeptizing Here.” Eddington referred to the same changes in outlook, within the physical world, to which Bridgman referred in the above quotation. Yet, how differ-

\* “Reflections of a Physicist,” by Percy Williams Bridgman, Philosophical Library, 1950. This statement was originally published in Harper’s Magazine for March, 1929.

ently these two scientists reacted to that situation. Edgington in his more inclusive approach, said:

“You will understand the true spirit neither of science nor of religion unless seeking is placed at the forefront.”

Bridgman, in continuing his comment on the conditions existing in 1929, says:

“But doubtless by far the most important effect this revolution will not be on the scientist, but on the man in the street. The immediate effect will be to let loose a veritable intellectual spree of licentious and debauched thinking.”

This is a strange comment from a scientist who has habitually insisted that he should have “no holds barred” when he selected whatever he might wish to investigate.

We are here primarily interested in Bridgman’s own mental attitude at the prospect of facing the universe with a new concept of his own mental potentialities. To have a new concept in physics, that was almost routine for him, but this was a mental frustration. He could not continue to think about his mental urge to press forward as he had been thinking about that urge in the past; he had to admit that there were limitations in his past ideal which he had not thought of before. His mental voltage dropped so low that his forward urge almost disappeared, and he dejectedly concluded that, “we may eventually hope for an understanding sufficiently good for all practical purposes, but no more.” In the fading light engendered by entanglements in the meshes of his own dogmatic skepticisms Bridgman surrendered, according to his own testimony, most of his mental radiance.

This becoming mentally depressed when one is confronted with a sudden mental challenge often occurs in



those minds which are dominated by physical phenomena. Theoretically, skeptics like to have the world believe that their minds are open to every mental suggestion that comes along, but in practice, those skeptics who have organized their minds sufficiently to accomplish something, usually arrange their attack so as to shield their minds from a sudden mental challenge.

Dewey shielded his mind from a sudden challenge to his mental habits by insisting that any concept which expected to receive respectable consideration from him must present its "birth certificate,"—showing that it was a legitimate child of a "cause and effect" physical process that he had previously approved. And Weizsacker used a circle to symbolize his mental processes, so that no matter where he entered that circle he would always come back to his starting point.

### *Dogmatic-Skeptical Thinking*

This shielding of the mind against a sudden mental challenge suggests a little inquiry into the relationships existing between dogmatism and skepticism. Usually, either the dogmatist or the skeptic is equally reluctant to look forward into a changing mental future; neither is willing to alter his individual approach to his own mind. The dogmatist is afraid that if he changes his mind he may become skeptical. And the skeptic is afraid that if he changes his mind he may become dogmatic. Each fears the other. They are both attitudes of mind, rather than active processes of the mind. Either the dogmatist or the skeptic, however, is willing to think about *things*, so long as such things do not threaten his own approach to his own mind. But, when either of them begins to think about his own mind, he may get the wires crossed.

The modern dogmatist is so skeptical of everything that is outside of his dogmatic field that he does not go looking for any ideas in that vast wilderness. The modern skeptic, on the other hand, is willing to collect mentally docile specimens from all over that vast wilderness for examination in the biological laboratory which he has set up in one corner of his brain. The director of that laboratory is sufficiently *dogmatic*, however, to insist on one thing; no specimens shall be brought into the laboratory for examination unless they are mentally immature enough so that they do not know what they are thinking about. This director is not taking any chances on having any *conscious* ideas thrust back at him in his own laboratory.

When placed on an assembly line of energized thinking, the modern dogmatist emerges with a large measure of skepticism in his assembled thinking; and the modern skeptic emerges with a large measure of dogmatism in his assembled thinking. Speaking inclusively and collectively, dogmatic-skeptics just are not interested in thinking about changing the "model" of their mental machinery; some day they may be, but not yet. This resistance to the changing of one's mind often engenders a shrinking from personal responsibility toward growing boys and girls in this generation, and perhaps in the next. Such *shrinking* is equally calamitous whether it results from deferred responsibility, or merely from ignoring responsibility.

In a skepticized society many individuals assume that they cannot and ought not to be *held responsible* for the resulting convictions which they stimulate in the mentalities of others. But, if evolution is a sound hypothesis one cannot so easily sluff off his responsibility, even in only a partially integrated society.

When a person, who "believes only what he knows," begins to think he soon discovers that he does not "know his own mind." And, when a person, who tries to believe that he thinks only with his imagination, begins to think, he also soon discovers that he does not "know his own mind." The problem is not the location of the two horns of a dilemma, but to discover how the mental dilemma was created in the first place. The person who limits the length of a thought before he begins to think is in a sad plight; and the only promise of escape from that plight is *to begin to think*.



## CHAPTER V

### COMPARISON OF IDEAS

#### *Unseen Forces*

An effort will be made to confine the comparisons in this Chapter quite neatly to a comparison of *ideas* or *concepts* within a stricter meaning of those terms than often obtains in the writings of today. Science started out with the idea of giving to mankind an interpretation of the universe, and of man himself, in terms of the essence of things so that in a short while human beings would not need to refer to beliefs about themselves but would have the facts needed to interpret life more directly.

After filling the popular mind with imaginative ideas about evolution and the hope that a little more study of evolution would give them the data needed for such an interpretation, science as a school of learning, shifted its emphasis more and more in the direction of specializations of one kind or another until today *in its learned discussions an overall interpretation of the processes and significance of evolution is being quite completely bypassed.*

Chapter IV touched briefly on the characteristics of modern photography which gives us instantaneous impressions of the outside of things. Moving pictures and television repeat these impressions so rapidly before the eye that the eye does not have time to separate these

impressions one from another, thus producing an effect on the eye of continuous movement. Everyone is familiar with the speeding up and slowing down of a movie camera so as to produce almost any degree of "deception" on the human eye which an imaginative impulse may desire. Of course such a camera may be used constructively to instruct the human eye when the instantaneous impressions and the subsequent speeds of release are faithful to actual conditions.

Even when the camera is faithful to actual conditions it only shows the outside of things. The camera never shows *the essence* which lies inside or back of the movements which are occurring. Furthermore, a movie never *can* show what *is producing* the movements which are taking place. This emphasizes a major omission in modern scientific propaganda. The public mind is given to understand that scientific pictures reveal the reality of things and where the camera cannot photograph anything there is no reality there; whereas the camera never has been able to photograph *energy* or *force*. For example, the camera never has been able to photograph the *force* of gravity. The camera photographs *only* those integrations of mass which are sufficiently *large* and sufficiently *illuminated* so that the camera can *get* them.

The Einstein equation  $E=mc^2$  is essentially a mass-energy conservation equation, which purports to give the relationship between energy and mass, if and when mass is completely transformed into energy. Approached from the standpoint of mentality engineering this equation expresses the idea that mass and energy are interchangeable, and can be converted from one into the other under appropriate circumstances. This has already been referred to as a mass-energy relationship *concept* in which the older idea of cause and effect is swallowed

up in mass-energy relationships which may be continually changing, but in which even scientific imaginations have not yet been able to dissociate mass from energy into a plausible scientific conclusion.

At the present state of knowledge concerning mass and energy about all that can be said is that wherever movement occurs mass is there because insofar as science is aware today mass is the only thing that can be moved; and energy or force is present and acting because insofar as science is aware energy or force is the only means of causing movement. The mathematical scientists tell us that there is plenty of internal movement within physical structures which the human eye cannot observe directly. It is the visible movements of physical structures which the eye can observe that the ordinary individual is interested in. He wants to know where he can get gasoline that will propel his automobile without "knocking" on the heavier pulls.

Perhaps the simplest way of illustrating something of what a cooperative-coordination within mass-energy relationships can signify, within an integrated combination, is an internal combustion engine. An internal combustion engine is a coordination of mechanical parts such that gasoline and air mixtures may be ignited in controlled sequences within the cylinders of the engine to propel the pistons of the engine, thus supplying the energy to operate that engine. If mathematical science is dependable, the gasoline itself is an integrated mass-energy relationship which is normally stable until it is mixed with air and ignited which starts a chain reaction that causes a change in mass-energy relationships while the process of combustion proceeds. The mass-energy relationships within the engine itself are continually changing while the engine operates.



One can take a picture of an automobile engine and say, "That is what drives your automobile." This is incomplete because one needs gasoline to drive his automobile, but gasoline will not drive an automobile without a coordinating mechanism which is the engine. This illustrates how futile it is to try to deal with reality under the old idea of "cause and effect." Even the gasoline which propels the engine is already a mass-energy relationship which changes into mass-energy relationships that continually change, while the fuel is burning. Everything that occurs depends on a changing relationship between mass and energy.

Even if gasoline is a "fact," represented by the chemical symbols which define it chemically, that fact changes into other facts some of which can be represented by chemical symbols applied to exhaust gases that escape from the engine. This whole set of chemical symbols, even if complete and accurate ignores the unseen force that propels the engine. Some youngster might say, "Oh, but I have seen a 'window' in the cylinder of an engine through which I could see a flame in the cylinder." But a flame represents incomplete combustion and *the force* is released by that part of the combustion which has been completed. One can no more see the *force* that drives his automobile than he can see the *force* of gravity.

The human body is an internal combustion engine in which the food that we eat is digested and some of it is transferred to the blood stream and carried by the blood stream to the lungs where digested particles are burned by combining with oxygen in the lungs. This supplies the forces required for all the activities associated with the body, and these are many: the *force* required to digest the food we eat, the *force* required to keep the heart

pumping without cessation, the *force* required for all muscular activities, the *forces* required for constructing and operating all the nervous systems within the body including the *forces* required to operate each of the five senses, the *force* required for generating perception, and the *forces* required for constructing and operating each and all of the concepts which may be created within a mentality field.

Science has attempted to photograph and otherwise analyze many of the activities within the body but many of its conclusions have been unreliable because they were deduced without reference to any comprehensive concept of the *unseen* and hence *elusive content of the forces* which were present and acting in *time* and *through time*. Of course in a superficial way science does recognize the presence of energy and something of its function in moving parts of the human body, but that functioning of energy which created the functioning organs of the body was not available for elucidation by science because *unseen forces* are foreign to organized scientific methods and anathema to skeptics.

Simply because a concept cannot be photographed does not mean that it is *unreal*. An imaginative concept may be unreal but a genuine concept can have a measure of validity which exceeds that of a photograph because such a concept is formulated by the most "refined" or most highly developed type of energy in this universe. This follows naturally from our assumption that the epochs of evolution point toward a mentality field as their optimum achievement at the present time. Does it not then follow that our most cogent mental procedure should be *directed toward the development of valid concepts within mentality fields*? The immediate question of the skeptic will be, but how do you establish such

validity? We have already tried to outline a method of approach for establishing such procedures and will now endeavor to interpret something of the meaning of such a procedure by comparison with other philosophical ideas.

### *The Heinemann Approach to Philosophy*

Inasmuch as my engineering activities and other duties have left very little time for devotion to a formal study of philosophy, and inasmuch as the main purpose here is to relate mentality engineering to the immediate philosophical approach to the vacuous imagery in modern thinking, I shall confine this discussion largely to a review of a review. I refer to a recent book by F. H. Heinemann, entitled, "Existentialism and the Modern Predicament."

Heinemann's approach to the subject matter which he presents, may be graphically brought into the foreground by the following quotations which appear in the midst of his discussion relating to the philosophy of Karl Jaspers: \*

"It is extremely interesting and rich in detail but it is not logic."

Then he cites a long list of logicians ending with Whitehead and continues:

"It is true, Aristotle forgot to give a definition of logic and it is not easy to phrase it in such a manner that it is sufficient and comprehensive at the same time. Nevertheless, logic is and remains the science of the rule of correct reasoning. It is our duty to be uncompromising on this point and to avoid concessions which are out of place. For we are faced in all countries which either are, or have been, under

\* "Existentialism and the Modern Predicament," F. H. Heinemann, Harper & Brothers, Publishers, New York, 1953.



the sway of dictators, with generations of young people who have lost the faculty of thinking for themselves and for whom a serious study of logic, devoted solely to the objective data of this science, is an indispensable medicine."

These two quotations certainly thrust the "Modern Predicament" into the foreground in more senses than one. Heinemann dogmatizes his own approach to the modern predicament before he begins to think, or at least his thinking is so highly tainted with dogmatic-skepticism that he approaches the modern situation through his own preconceived idea of how any thought about thinking might be validated. He goes back to Aristotle for justification of his logic but does not find there anything that "is sufficient and comprehensive at the same time." Then he proceeds, "Nevertheless, logic is and remains the science of the rules of correct reasoning." In other words, he insists that his approach is scientific and insofar as he insists on approaching everything through a "specialization" he is correct. What he apparently does not perceive is that it is this exclusiveness within specializations which is at the very cross-roads of modern mental confusions.

He finds Jaspers' philosophy "extremely interesting and rich in detail but it is not logic." Heinemann must first defend the logic of his position, that is he must first defend his own speciality, before he can give his full attention to a "richness in detail" which some other mentality may present to him for consideration. Richness in detail may be deferred for later consideration, if and when he has *time*, but the immediate pursuit of his speciality is of first importance. Thus it is that we have so many specialities of *first importance* in the scientific approach to thinking that there is, practically speaking, no time left for thinking about thinking.

So many scientific minds today are so exclusively devoted to specializations of one kind or another that they have neither the time nor the disposition to think about thinking in its overall relationships to the problems of life. Is it not precisely the *omission* of thinking about thinking in its relationship to the development of a capacity for perception within a mentality field which has produced the "generations of young people who have lost the faculty of thinking for themselves"? The modern predicament could hardly be more tersely presented than in the phrase, "generations of young people who have lost the faculty of thinking for themselves," but a forthright approach to the solution of this predicament is hardly contained in the Heinemann formula envisaged in his words which follow that statement: "and for whom the serious study of logic, devoted strictly to the objective data of this science is an indispensable medicine."

Young people do not need a "medicine" so much as they need to be taught how to think. They need to be instructed in possible ways in which perception first appeared and how perception is raised to a voltage where it may become effective in creative thinking. Serious study "devoted strictly to the objective data" of a particular science is not enough. As already pointed out, our scientific era has collected tons of objective data which cannot be digested by a mature individual much less by a growing child. Any projected solution of modern mental confusions must begin with the child. This is why mentality engineering places so much emphasis on the fundamental significance of perception and the integration of percepts into concepts.

Heinemann's insistence that "thinking thought" must

be changed into "thought thought" before it becomes philosophy, or before it can be used in Heinemann's philosophy, suggests that he insists on denaturing the thinking process so that it becomes sterile before it can be admitted into his household of philosophy.

Modern existentialism insists that Being is ontological, that is, it cannot be separated from its ongoing process, and yet much of the modern discussion about existentialism seems to insist that thinking must be *arrested* before it can be evaluated. One can hardly evaluate an automobile while it is standing still. Likewise, thoughts *can only* be evaluated while thinking continues. Thinking in syllogisms is not creative thinking any more than moving the pawns in a game of chess is creative thinking. The pawns represent what the logicians call "facts" in his game, but an imaginary arrangement of facts does not insure an operative idea. There must be energy released somewhere within the combination in order to produce movement. As already pointed out, in all engineering operations the initiating of energy apparently occurs while one form of mass is changing into another.

### *Karl Jaspers' Philosophy*

Let us turn for a few moments to a direct consideration of some of Karl Jaspers' ideas as presented primarily in his book, "The Perennial Scope of Philosophy." The gist of Jaspers' ideas, at least at the time he wrote this book, appears to proceed from a "dialectic". He says; \*

"*Dialectic* has very diverse meanings. Common to them all is only the essential importance of contradictions. Dialectic means the logical progress through antitheses to

\* "The Perennial Scope of Philosophy," Karl Jaspers, Philosophical Library, New York, 1949.



a solution in syntheses. Dialectic denotes the movement of reality with its contradictions that tilt into one another, unite and produce something new. . . .

"Just as Being and Nothingness are inseparable each containing the other, yet each violently repelling the other, so faith and unfaith are inseparable yet passionately repel one another."

This dialectic approach is utterly foreign to whatever we have tried to set forth as mentality engineering. In mentality engineering as in physical engineering mass-energy relationships are produced which accomplish something and then the engineer proceeds to change these relationships so as to achieve a better result. The engineer patterns his planning after the manner in which all the growing things in nature apparently produce their fruits, as by cumulative integrations adding increments through time to something which existed in time before.

As Jaspers proceeds to do a little more thinking he seems to try to extricate himself from the bottomless pit of Nothingness as when he says:

"Faith withdraws to a minimum at the borders of unfaith, and from this infinitesimal point, it reverses the process and spreads anew . . .

In unfaith the human condition becomes a biological fact among other biological facts; man surrenders to what his finite knowledge determines as necessities and inevitabilities, he gives in to a sense of futility, the energy of his mind declines. He stifles in his supposed factuality."

Jaspers' "unfaith" here appears to be unbelief or skepticism which is exactly what we have devoted considerable space to, in order to show how distracting and disintegrating unfaith can become. In his next statement Jaspers seems to be supporting a mentality engineering positive idea of faith when he says:

“Philosophical faith, on the other hand is the faith of man in his potentialities.”

Later on he says:

“Since all faith is historical, its truth does not lie in a sum of articles of faith, but in a primal source that is historically manifested in various forms.”

This “primal source that is historically manifested in various forms” seems to point quite directly toward the gist of a faith that is rooted in time, accepts from the past, contemplates in the present, and achieves in the future. Faith is valid belief acting through time. Faithful thinking is that activity within a mentality field which carries one forward to the perception of something which was not perceived before.

In bold outline, Jaspers’ philosophical faith as “the faith of man in his potentialities,” seems to be pertinent to mentality engineering. But, faithful thinking is a kind of mental activity which may be applied within any field of thought, science, religion, engineering, or any other specialized field of thinking.

Mentality engineering proceeds directly from a “primal source that is historically manifested in various forms,” but it cannot grant that this “primal source” was created out of Nothingness, or a sense of nihilism, before it proceeded to create that something which could be “historically manifested in various forms.” Mentality engineering is a concept of growing from more to more within an eternal continuum without postulating that that continuum was projected out of Nothingness. Certainly every child who is born into life on this planet was not projected out of Nothingness. Likewise every valid thought which that child, later in life can

give birth to within his mentality field will not be projected out of Nothingness, either.

The theory of contrasts appears to be based on the assumption that we can only learn through the use of contrasts. There is enough validity in this assumption to make a general appeal possible. But, the very statement of this postulate has something in it which impels a loosely organized mind to emphasize opposites as the fundamental concept at the basis of all knowledge. Such a person contrasts up and down, right and left, good and evil, life and death, the definite and the indefinite, the finite and the infinite, etc., etc. That is, such a person contrasts opposites and these opposites explode in his face, but the idea is so intriguing to him that he may insist on developing a whole theory of learning on the basis of *either, or*; next he trains himself so that he can argue for either one or the other of these opposites often without being able to demonstrate a superiority of either. Then he concludes that the most ingenious way of pursuing learning is through controversy,—which seldom arrives at any constructive conclusions.

To be sure, the engineer uses contrasts, but he usually deals with degrees in contrast; that is, with something which has not yet assumed the magnitude of opposites. He contrives instruments to measure degrees of change; such as changes in temperature, changes in pressure, changes in voltage, etc. This gives him relative values that are really useful in determining whether one condition is better than another. The engineer uses heat developed by an explosion, by confining the explosion within a *restricted space*, as in the cylinder of an engine, to propel a piston and thus produce power which can be used for doing useful work.

Thus, the engineer uses what may be termed contrasts



to improve his knowledge of various things and conditions including the shaping of mass materials so as to fit into engineering structures, and he also deals with energy, within a localized range of its manifestation, which can be directed and controlled to propel the machines which he designs.

Mentality engineering should profit by a comparison with such procedures and concentrate on a perceptive range of mental capacity within a mentality field. In other words, the most important concepts in mental activity are not those which envisage opposites, and especially the extremes in opposites, but those which envisage a perceptive range which can be usefully fitted into a pattern of creative thinking.

The time which is wasted on trying to determine whether the definite or the indefinite, or again the finite or the infinite are the most useful concepts to contemplate, could more profitably be applied to the contemplation of values which lie within a limited range between the known and the unknown, or the finite and the infinite, so that progress may be made in transition from the known toward the unknown to the end that another finite beyond the range of the old finite is perceived; or in which the finite moves another step toward the infinite as perception moves one step further in the acquirement of a more comprehensive grasp.

Karl Jaspers' philosophy insofar as I have penetrated into it, appears to be beating itself out by oscillations between two extremes, as between the definite and the indefinite, the finite and the infinite. He seems to insist on coming to rest in the infinite and then does not dwell there; he darts back again to the finite and the definite only to be followed by another dart back to the infinite. He seems to prefer to characterize the infi-

nite as the Transcendent but does not succeed in any further definitions of the Transcendent. That is, he oscillates between the Transcendent and the definite and prefers to hover, like a bird, in the region of the Transcendent without nesting there.

In the field of creative mentality the idea of oscillating or vibrating between the definite and the indefinite may have real value as a concept of activity within a mentality field, wherein the magnitude of the oscillations is restricted. Perhaps we should better say between the definite and the infinite because the infinite includes all or everything; whereas, the concept of the indefinite might be interpreted to include a false concept, or even an imaginary concept which might not be sufficiently grounded in the essence of reality to have or possess meaning as a genuine concept.

We might conceive of creative thinking as an alternating current between the definite and the infinite in which the oscillations are restricted to a magnitude which carries the perception of the definite into a perception of the infinite and vice versa, in such rapid alternations that the meaning of one is not lost before it coalesces with something of the meaning in the other. Something of this sort probably does occur within a field of mentality when a new insight from the infinite is integrated into a definite that was known before, thus creating a more comprehensive definite.

### *An Illusory Definite*

During our scientific era there has existed a type of "worship of a scientific definite" which lies at the root of much of the mental confusion which our scientific era has produced. This *definite* has functioned as a superstition, or false faith, in that it presumed itself to be

more exempt from change within the ongoing process of evolution than could be substantiated. Our plea for some form of organized scientific-theology rests solidly on this basis. Stark science presumes that its *definite* possesses a degree of validity, and of truth, relative to the whole process of evolution which it has not substantiated. At least this presumption has been impressed on the public mind and lies back of the devastating sophistry of skepticism.

We have already pointed out that dogmatists and skeptics fear each other. The dogmatist fears the unknown because he, or somebody else, has not already eliminated his doubts about that unknown. The skeptic imagines an interpretation of a dogmatic statement and then fears to inquire into the validity of his own interpretation lest he find more evidence to support the dogmatic statement than he has evidence to sustain his own imaginary rejection of it.

Either the dogmatist or the skeptic may resist the entrance of a new idea into his mind which has not already proved itself to that mind. If each is true to his profession there is not much hope of teaching either of them anything. This illustrates the large degree of futility which resides in trying to classify ideas as either dogmatic or skeptical. However, in view of the varying degrees of emphasis which have been placed on dogmatics and skepticism during our scientific era a discussion of thinking about thinking can hardly ignore a reference to the impact of these two attitudes on modern thinking.

In the confused thinking of today neither the dogmatic-skeptic nor the skeptical-dogmatist "knows his own mind." In the prosperous twenties when engineering was demonstrating through our industrial develop-



ment the manner in which it could relieve man of many of his arduous physical tasks a general imaginative public attitude was expressed by the refrain in a song, "I want what I want when I want it." This song expressed all too much of a mental attitude which existed then and has existed through time since then. Heinemann's individual insistence on wanting what he wants when he wants it, is envisaged in his concluding comment on Jaspers:

"The *leitmotif* of our whole Philosophical Logic,' he (Jaspers) says, 'is the thinker who proceeds undisturbed on his way.'

"Arresting as this remark may be, it again proves that the idea of a logic of reason, as distinguished from a logic of the understanding, remains unrealized, perhaps because it cannot be realized in an age of catastrophes. The predicament of our time is here turned to advantage. The logic of reason is treated as if its subject-matter were the endless progress, not of reason, but of the understanding and of intellectual reflection. In consequence thereof Jaspers remains entangled in Hegel's *bad infinity*, i.e., in the limitless progress of a series in which one never meets the actual Infinite. Jaspers is right. Most human truths are not definite and open to revision. Nevertheless the Finite and the Infinite, the Temporal and the Eternal, are not divided by an unbridgeable chasm. Life would not be worth living if truth could never be realized in it. The spheres in which this is possible may be small; but they exist, e.g., in mathematics and science. Their truths are not absolute, they depend on certain presuppositions. Nevertheless, within certain limits, we may have knowledge on which we could not improve."

The first quotation above which refers to "the thinker who proceeds undisturbed on his way," has the sound of modernity in it but our disturbed mental atmosphere requires that the thinker give us some idea about *what*

he is thinking and *how* he is thinking; or whether he is merely using his imagination and only imagines that he is thinking. As I see it, Jaspers asked himself some of these questions and became so confused in his own mind that he could not meet the modern situation with a *definite* philosophy. In, "The Perennial Scope of Philosophy," he says:

"The numerous varieties of anti-philosophy assume the forms of unbelief . . . even these modes of unbelief contain some truth upon which we must finally reflect. . . . by identifying oneself with demonic forces and, in the confusion of an age made spiritually arid by science, to justify one's actions as dictated by such forces."

Jaspers' reference to "demonic forces" and spirituality indicates clearly that he is endeavoring to deal directly with subject matter which more strategically belongs within the field of theology proper. This alone would make it impossible for Jaspers to formulate a philosophy within Heinemann's stereotyped idea of what philosophy should be. This inclusion of the study of "demonic forces" and spirituality within the field of Jaspers' own thinking about philosophy makes it impossible for him to outline a philosophy which is conceivably independent of religious theology. If philosophy is to maintain an existence independent of formal theology it must insist on developing those mental techniques which can establish validity independently of religious theology.

Religious theology does and must deal with the influences of evil, including demonic forces of all kinds, and must attempt to devise ways and means for combating these evil forces. Ultimately mentality engineering may have some suggestions to offer in this field, at least to the extent of pointing out that there is room for

many branches in theology, just as engineering divides itself up into branches dealing with particular parts or phases within the concept of engineering as an integrated field of activity. Here, however, we are primarily concerned with the development or generation of perception itself, and the organization and integration of perceptions into useful concepts.

Relative to the subject matter of mentality engineering let us inquire into the pertinence of some of the statements made by Heinemann in the above quotation. What precisely does he mean when he says, "Jaspers is right. Most human truths are not definite and open to revision. Nevertheless, the Finite and the Infinite, the Temporal and the Eternal, are not divided by an unbridgeable chasm"? Why then does science and Heinemann insist on dividing the finite from the infinite and the temporal from the eternal? In other words, why do they insist on *isolating* the finite from the infinite, and the temporal from the eternal? If these things are not divided why attempt to build an unbridgeable chasm between them and then insist that such an unbridgeable chasm does not exist?

Certainly syllogistic philosophy can never bridge the modern chasm which has been created between the finite and the infinite. This impossibility seems to be semi-consciously envisaged at least, in the statement at the beginning of the quotation from Heinemann, "—it again proves that the idea of a logic of the understanding, remains unrealized, perhaps because it cannot be realized in an age of catastrophes." But, what produced "an age of catastrophes"? And, how can such a catastrophic age be reduced again to a sufficient *quiescence* so that "*a logic of reason*" can be made to appear effective?



### *How Definitely Conclusive Is Science?*

Returning to the “unbridgeable chasm,” we read again, “Life would not be worth living if truth could never be realized in it. The spheres in which this is possible may be small; but they exist, e.g., in mathematics and science. Their truths are not absolute, they depend on certain presuppositions. Nevertheless, within certain limits, we may have knowledge on which we could not improve.” Does Heinemann mean to insist here that in our *finite* mathematics and science we have deduced “knowledge on which we could not improve”? To be sure, he admits that, “Their truths are not absolute, they depend on certain presuppositions.” But, how “certain” are these presuppositions? Is it not precisely the *uncertainty* of these presuppositions that is causing “an age of catastrophes”? Let us take a look at something of an historical review of this situation since the beginning of the present century.

Referring to the atom, for example, at one time not so long ago, the atom was conceived to be the smallest possible division of matter; this was not true; but the concept did contain some measure of validity in it. Further inquiry led to the discovery of a further measure of validity. The skeptical scientists contended that this further measure of validity was discovered by the elimination of error. But how was the error eliminated? Is it not more reasonable to assume that an increment of validity, added to an existing partial validity, may add up to a larger measure of truth; whereas, an error added to anything can never add up to a larger measure of anything, except possibly to a larger error.

Mathematics postulates that matter is composed of molecules which are mostly open space with atoms traveling at enormous speeds across those spaces with min-

ute "particles" flying across these spaces at terrific speeds.

What holds the particles in the atom, the atoms in the molecule, and the molecules in a solid, such as a marble, from flying off into outer space? Also, if the edge of my razor blade is mostly open spaces with tiny particles flying back and forth at terrific speeds, what holds the line in the edge of my razor blade? If these things are true, there must be some integration constants which determine and maintain the paths in which those tiny particles cease to travel beyond the surface of the marble, or beyond the edge of the razor blade, *in spite of a rise in temperature*, which is postulated as increasing molecular activity.

In his next breath the scientist postulates that such an increase in molecular activity within a gas increases the pressure against the walls of a closed container. In this way pressure is produced on the piston head in an engine to propel that piston. Insofar as I am aware no scientist has yet attempted to explain this physical paradox. This is all within the scientist's own realm and need not concern us further here, except to point out that it is also all within the physical realms of things and far removed from the realm of living phenomena not to mention perceptive elucidations.

However one may analyze the build-up of our present mental predicament, we have before us today a full-dress-rehearsal of the situation which occurs when science takes engineering into its own hands and begins to show the world what it can do in a mental atmosphere that is charged with skeptical diffusions. Within this surcharged atmosphere of doubting all that science has not yet analyzed, engineering has lost its normal integrity of purpose as a means of satisfying human needs.

Its normal incentives for serving the needs of man have been degraded to the level of destroying man not only individually but en masse.

Returning to a more direct consideration of logic, mathematics is primarily a system of logic. But, when we come to the application of this logic to the physical world the interpretation of this logic relative to physics, and even more in the interpretation of physics relative to this mathematics, a large part of the validity in the original mathematics has a chance to evaporate in greater or lesser degree. Furthermore, in the planning of experiments and the interpretation of experimental data which is used to verify mathematical computations, the original mathematics is reduced to the status of a servant rather than remaining the master relative to the interpretations of experimental data. All this is theoretical and does not reach the man on the street. He has been given to understand that science knows quite definitely what it is doing and where it is heading.

Skeptical scientists in the early part of the present century, talked and acted as if science would soon be able to explain everything, and this is what reached the public mind. Today practically all of our leading scientists admit that this day has been indefinitely postponed. In "Science and Common Sense," Conant says:

"My definition of science is, therefore, somewhat as follows: Science is an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful of further experimentation and observations. In this definition the emphasis is on the word 'fruitful.' Science is a speculative enterprise. The validity of a new idea and the significance of a new experimental finding are to be measured by the consequences in terms of other ideas and other experiments. Thus conceived, science is not a quest for certainty; it is



rather a quest which is successful only to the degree that it is continuous."

The last sentence in this quotation was quoted and commented on briefly in the preceding Chapter.

Science is today discovering more and more, about smaller and smaller divisions of mass in which somehow, skeptical minds seem to think that perhaps the gist of reality may yet be discovered by moving in that direction. This, in spite of the Einstein equation, which seems to proclaim to the world that mass and energy are forever assembled in bundles, however small, or however large those bundles may be.

The engineer can assemble smaller or larger bundles of mass-energy combinations, some of which to all intents and purposes appear to be quiescent, (but the scientists tell us there is still plenty of activity there). Other engineering bundles have the capacity of being quite active within the range of our common perception. These "activity" bundles are the ones which most nearly simulate living integrations of mass-energy relationships.

These activity bundles within the field of engineering continue to be *active* so long, and *only* so long as a source of energy is present *within them*. When such a source of energy is absent the observed activity within engineering bundles ceases. In a manner of speaking one might say that the "cause" of such activities is the outside source of those activities. This, however, is too easy an evasion of genuine thinking.

For example, Niagara Falls is the source of the electricity which is being developed there. This source of energy existed for ages before it was utilized to develop electricity; therefore, the "immediate" source of the electricity being developed there is the electric generator;

but the generator is propelled by a turbine which *was* designed by the mentalities of men and the turbine *is* activated by the water that is passing through it. Moreover, there is an imperative time relationship between the source of energy and the appearance of that energy in a transformed manifestation of itself, which in this instance is electricity. Causative impulse appears to precede, but it may be only antecedently concurrent with a transformation of itself into something other than itself.

The food we eat, in combination with the oxygen which we breathe from the air, is the outside source of all the manifold transformations in energy which direct and operate the human body. The most highly developed transformation of energy apparently occurs in the mind of man and appears in the form of perception. This perception can only be active when the necessary energy is present to operate it. There is apparently a time relationship between the time the human body takes in food and the time when the energy from that food is available as perceptive energy. This is something that the scientists might speculate about; but the time factor we are interested in here is the time required to evolve the *total machinery* for the conversion of food into perceptive energy in its relationship to the significance of perception itself relative to the eternal, as compared with a momentary deduction relative to an individual imagination.

There is a qualitative-validity factor here to which organized science has as yet given very little attention in its own published records. Within the popular discussions of science practically no consideration has been given to such a validity comparison; and in the advertising of industrial gadgets of all kinds, references are

made to science as if a claim that the gadget is scientific were all that is needed to establish a scientific certainty that that gadget would do what is claimed for it.

Of course the scientists cannot be held responsible for all that is said in so-called scientific advertising; however, inasmuch as modern confused thinking stems so largely from an over-estimate on the *known* in its relation to the modern situation, any philosopher who attempts to clarify modern thinking must give adequate consideration to the un-balance in mental deductions which are too heavily weighted in favor of what is scientifically deduced.

The apple in the tree is our stock in trade comparison. Why has science devoted so much time and attention to the fall of an apple from a tree, and so little time and attention to how the apple integrated itself in the tree? Many more characteristics of the *unknown* are involved in this integration than in the fall of the apple. It requires a knowledge of something more than a partial analysis of the force of gravity to explain how an apple *grows*. Also, we should like to know something about the functioning of energy which is the *silent* and *unseen* partner in mass-energy relationships which produce nervous systems, and even thinking itself.

### *Time to Think*

When referred to time considerations, Heinemann's thinking has reached the stage where he can conceive of the possibility that the full essence of life cannot be comprehended except in its relationship to time; but, his mental organization is not yet adapted to perceive that concepts relating to thinking must also have a time content in them. In discussing Nicholas Berdyaev, he says:



"His publications are occasional writings, pamphlets in the great style, rich in insights, but no masterpieces. No real development of his thought occurs in them. Together they form a creative chaos, full of inconsistencies and contradictions, but no cosmos or system."

The phrase, "rich in insights but no masterpieces," discloses again that Heinemann's mentality is not oriented to deal directly with insights. Those insights must be reduced to a "cosmos or system" similar to the conceptive pattern which Heinemann already has in his mind before he can imagine their *true* import. That is, "true" relative to the capacity of his perception; in other words, he does not conceive of a philosophy being concerned with the integration of insights. He seems to insist that the creative thinker should integrate his own insights into a concept which does not transcend the meaning of previously integrated concepts in Heinemann's mind.

In other words, he may be willing to accept a new buggy and a new harness for his horse, but he is not willing to accept a new engine to replace his horse to propel his vehicle. That would be accepting a *new integration of parts* for the production of power with which he is unfamiliar. This is a mechanical analogy which must be transposed into its mental equivalents before it can suggest the full essence of the thought here intended. As a mechanical illustration, Heinemann could readily criticize it and probably would suggest that the genius should build the automobile and give him a ride in it before he would believe that such a *think* could exist. He seems to insist that philosophy should concern itself with accomplished thoughts instead of concentrating on how creative thinking can be pursued.

He insists that someone else do his thinking for him, and then he will be free to exercise his logical mind on whatever he chooses to criticize. His statement quoted above is an excellent example of the limitations in dogmatic criticism. He would probably resent being classed as a dogmatic thinker but how else can he be placed categorically when he passes lightly over the material "rich in insights" and insists on that material being presented in the form of a Heinemann "cosmos or system"? He is caught in the mental trap from which he so desperately attempts to escape. The two-fold title, "Existentialism and the Modern Predicament," gives him a chance to dive back and forth from one to the other aspects of this title while he refers to one philosopher as "floating," to another as "skipping" and yet another as "jumping" in the midst of a particular discussion. In discussing the modern predicament Heinemann seems to show a gleam of insight, but when he tries to integrate these insights into existentialism he fails miserably, and even admits it himself. He concludes that he cannot give any clear definition of what existentialism is, and frankly states that he does not believe anyone else can. Then he continues to insist that existentialism is trying to deal with the existing mental chaos in our era.

His emphasis on "self-estrangement" appears to be another attempt to get ahead through trial and error. He seems to think that if one lays enough stress on the *error* of self-estrangement perhaps someone else may have determination and mental capacity enough to show or point the way to an escape from that error.

This thesis contends that escape from error can only be accomplished through the *selection* of something better than error; and also includes the observation that a definitive analysis of an error does not help much in the

selection of a procedure for eliminating that error. It may be helpful here to again emphasize the role of faithful thinking in mental activities, as well as in all creative thinking.

"Faith is the substance of things hoped for and the evidence of things not seen." Faith is mentality reaching forward toward something which is not yet clearly seen; but it is more than that, it is reaching forward toward something hoped for and includes a mental search in the direction where some evidence exists that that hope may be further realized. Faith definitely has a time content within its very concept which cannot be eliminated without sterilizing that faith. Faith accepts an integration of mass-energy relationships out of the past which is capable of generating hope, but it insists on discovering new mass-energy relationships which are capable of producing some achievements in the direction of attaining that hope. Faith accepts from the past, contemplates in the present, and achieves in the future.

It might be interesting to note that, when I was a boy, considerable emphasis was placed on the slowness with which evolutionary changes apparently took place. These proponents of science insisted that nothing of consequence could happen *suddenly*, therefore, the apparent sudden conversion in the mental perceptiveness, which some proponents of religion emphasized, could not possibly take place because evolutionary changes were very gradual. That, of course, was before the idea of physical mutation had been suggested. The point I wish to make here, however, is that science is today feverishly devoting itself to the development of atomic bombs where a mathematical equation is necessary to express anything like the sudden suddenness of such an explosion. This, of course, is all taken in stride and does not disturb



the scientific conscience because change, purely as such, is a common concept in the mind of man today. Changing attitudes in the minds of scientists hardly cause a ripple in this oceanic concept of change. But, as pointed out earlier, change can only be known by reference to something which is not changing; at least, not as rapidly as the change which is being observed.

Imagination is an abstraction in the mind of man which postulates a spontaneous concept without any correlative concept in the mind by means of which degrees of change in that mind can be measured or even approximately estimated. This leaves the mind hopelessly adrift within the realm of its own freedom. In my youth men spoke of the "freedom of thought". At the very inception of the idea of freedom the emphasis was on the desirability of freedom in order that man should be free to *think*, so that society might be enriched by this thinking. Today the slogan has disintegrated into "freedom of speech." In the early days language was thought of as a vehicle for conveying information. In an atmosphere of imagination, "language" has degenerated into "speech"; and today speech is being used so freely to express only imaginary situations that language has largely lost its foothold on reality. What was launched as a vehicle for communicating information has all too often been degraded to the level of reciting improvised bickerings of the imagination.

To many people today thinking is only imagination. They cannot think about thinking as having its roots in the eons of the past. They do not think about how the capacity to perceive anything, with sufficient clearness to consciously plan concepts and to use those concepts for an increase in perception itself, was apparently attained only after thousands of years of *improvement* in

inherited characteristics which made conscious thinking possible. The modern predicament, when reduced to its lowest common denominator, appears to be the result of the *omission of the dimension of time* in modern thinking.

The phrase the "lowest common denominator" in the last sentence probably does not mean much to the present generation, because its significance relates to the fact that *common fractions* cannot be added without being reduced to a common denominator. But merely reducing to a common denominator does not add the fractions together to constitute a whole. That addition *was* a separate mental activity. This short sentence has a widespread relationship to the mental confusion of today. The verb *was* refers to the fact that most modern additions *are* performed by adding machines where all fractions are expressed in decimals *which have a common denominator*. Then along the line of *causal* thinking many people think that if a machine can take so much drudgery out of thinking why not wait for machines to do all of our thinking for us. While thus waiting their brains tend to return to that mass-energy relationship which existed, and exists, in a jelly-fish from which the scientists tell us that somehow our brains were evolved.

Such causal thinking fails to recall that adding machines, and all other calculating machines, are a result of mental activity. Such machines are merely "mental labor-saving devices"; and as such may be *mental time-savers*. But, if the *time* thus saved is spent in mental idleness waiting for the time when thinking will no longer be necessary, except by the *few who provide* us with an ever increasing number of mental time-saving devices, this very *time saving* may prove to be a snare

and a delusion. This brings us squarely up against the fact that thinking is an individual operation which cannot be delegated to anyone else. If mentality is to be evolved into anything more than what it already is, the possessor of that mentality must provide for such evolution.

The provisions for growing mentally may not be as hard-hearted as a first reading of the last two sentences may indicate. Any procedure for growing mentally must include coordination with others, because one person cannot supply all the thinking that is necessary. The mentality of the individual is only a link between the mentality which preceded him and the mentality which may follow him. This time factor is an essential ingredient in mental development. Time here is not just an imaginary symbol which might be incorporated in a mathematical equation. Time may be ignored in a momentary contemplation of an integrated concept, but it cannot be ignored in any valid contemplation of how that concept came into being. This ignoring of the necessary life blood within a growing concept is apparently one of the limitations in Heinemann's thinking. He apparently desires to think of a concept as a stagnant bit of reality—unchanging and unchangeable within the logic of the ages.

In this, at least, he appears to be scientific. In its mental deductions science apparently refers to a "fact" as being something which is unchangeable; and proceeds to collect a veritable-store-house-full of such facts. Then science teaches its children these facts. Science has never yet located such an unchangeable fact but is still pressing its investigations in the hope of discovering *such a fact* within a world in which science in its next breath declares, "nothing in this universe is fixed, everything is



changing." This, of course, is not strictly logical but in order to fill a gap in this incongruence a definition of imagination was contrived which was sufficiently indefinite, and sufficiently inclusive to satisfy any mood and every need, insofar as any skeptic might have occasion to refer to any of the mental activities of man, whatsoever.

Such an imagination makes it easy for one to pass lightly over incongruities in facts themselves in various imaginary interpretations of those facts. In other words, *the vaunted rationality in scientific deductions is largely imaginary*. Its mathematical calculations are rational enough; in fact, mathematics is primarily a system of logic. Mentality deductions between experimental observations in the laboratory are quite another matter. Such observations are supposed to be interpreted in the light of the immediate experiment, albeit relative to an earlier calculation; but the genius of science insists that if there is any incongruity between the data of the experiment and the previous mathematical calculation, the calculation must be interpreted as being in error, as compared with the data of the experiment.

### *Thinking Between Experiments*

However, some genuine thinking does occur between one experiment and the next; that is, a scientist endeavors to faithfully interpret the observations made in one experiment, and to just as faithfully determine what the next experiment should be in order to get more information about the subject matter being pursued in a particular series of investigations. Here the speed factor may not be particularly important but something of the concept of a *time factor* in the thinking is important; that is, one experiment should follow another in a series

of experiments. Disjointed experiments without any relationship to each other are just a little too imaginary to receive much attention even from a scientific mind. It is between experiments that the mentality of the scientist is applied with its full capacity; at least insofar as the full capacity of a mentality can be applied to things which are outside of its own sphere, as compared with the capacity which might be available when applied to the consideration of capabilities within a mentality field itself.

The reader can perhaps visualize something of the measure of validity which is within the last sentence above, by thinking in terms of the mentality spectrum as previously outlined. Concepts which may be useful in making valuable deductions within the infra-conceptive range can hardly be of much value in conceptualizing within the ultra-conceptive range of the mentality spectrum. The concepts in physics can be of small value in determining the particular concepts which may be useful in conceptualizing the potentialities within a field of mentality. As pointed out earlier, physical concepts cannot be of much value in contemplating *spiritual qualities*. Spiritual thinking requires concepts which retain something of *time* in their very essence. Spiritual thinking must at least concern itself with some purpose or purposes which transcend the present moment by continuing on into the future.

However lightly purpose may be stressed in some scientific experimenting, the engineering equipment, which is indispensable in scientific experiments today, is all planned and designed for the specific purpose for which that engineering equipment is to be used. This purposeful planning pervades the whole field of engineering developments whether physical or mental. A

purpose is visualized, then the engineer proceeds to design equipment for the realization of that purpose. It is precisely the vision of *a life with no purpose* which is robbing mentality of its rightful place in human society today. It is difficult for a skepticized mind to find purpose in anything mental because it doubts the integrity of mentality. It is only mental integrity, devoted to a faithful search for the potential capabilities within a mentality field that can reveal that something for which ultra-conceptive mentality *can be used*. In this search the essence of time cannot be ignored.

Even though the omission of considerations of *time* may be basic in the imaginary thinking of our time, the remedy requires something more than a mere designation of the malady.

Relative to Heinemann's insistence that philosophy must be reduced to concepts which are "cosmic," one thought which should be introduced relative to creative thinking is that, in engineering one person does not make all the parts for a completed engine, but many people are engaged in making the different parts which may be assembled in a completed engine. Even a completed engine is of little value unless it is activated by some "vital fluid," and can only be tested as an engine while it is running. But, the idea to be emphasized here is that the designing of the different parts of an engine, which involves mental activity, was not all done by one mind either. It was the bringing together of "insights" in many minds that has produced the modern automobile, for example. This still is skipping around the vital mental element in creative thinking which is: *How* did perception reach ahead of where it was, or *how does* perception reach ahead of where it *is*? As I see it any philosophy which attempts to dodge this "how" can



hardly be of much value in pioneering within a field of mentality.

The mind of man, confused as it is today, is still captivated by the idea of pioneering; but, the field of physical pioneering is being largely cut off from the average individual because the ideas which can be picked up by just looking at the outside of things have mostly been recorded in one library or another; and pioneering in the ultra-conceptive range of mentality is so *remote* from the conceptual ideas presented to the children in our scientific schools that many of them just are not interested, due largely to a sheer lack in mental visualization.

This remoteness is due in the first instance to the dulling of mental acumen by extreme emphasis on specialization, and in the second instance, it is due to a one-sided development in conceptualization brought about by talking and acting as if the "unseen world" could only be discovered within the infra-conceptive range of the mentality spectrum. The scientists now admit that this unseen world cannot be translated into everyday concepts so that the man on the street can get any clear idea about what the scientists are talking about within their inner-sanctum. Insofar as science is related to the mental development of the man on the street, therefore, he must accept "on faith" the scientist's own interpretation of the mathematical significance of science today.

But skeptical science has exalted skepticism above faith as the quality in mentality which should be kept in the foreground of mentality. A semi-consciousness of this incongruity has seeped into the common mind today and is one of the *unexplained* "causes" which is producing unmeasurable mental distraction in the minds of men today.

The naive assumption of expecting the common man to have faith in scientific procedures while insisting, in theory at least, that the common man should be skeptical of all things mental, is a predicament in which the mentality of the common man is unequal to the task of reaching a reasonable explanation. As a result the mind of man sinks a little lower into an atmosphere of skeptical indifference.

This atmosphere of skeptical indifference is such a common state within so many minds today that a reference to it hardly causes a ripple in the mentality fields of *biologically repressed* human brains. Mental vitality in its own right has depreciated to such an alarming degree through skeptical emphasis on the futility of mentality itself that something more constructively capable than a *duplicity of errors* will be required to *spark the leadership* of mentality out of its own *apathy*.

### *Approaching Directly the Modern Predicament*

In Heinemann's last chapter he does give some evidence of having done some creative thinking during the progress of writing his book. He admits that he is emphasizing some things in the last chapter which he had not expected to emphasize when he began writing. In other words, he began to think while he was writing and did not confine himself to the conclusion toward which he had predisposed his mind as he began to write. This is at least a hopeful sign.

In discussing his, "Philosophy of Response," he appears to be trying to reach forward in his thinking, but much of his thinking is still skeptical and critical, rather than in the vein of forthright faithful thinking. This clinging to skeptical criticism has its roots in the concept that something may somehow evolve out of error which

is not error. The whole imaginative concept of skepticism is indefensible except on the assumption that something may be accomplished at least by *avoiding* error. This idea of getting ahead by contemplating error and then avoiding it is a hang-over from the primitive concept in the mind of man which emphasized the necessity of avoiding evil spirits. The concept of evil spirits was later consolidated into the idea of the devil who presided over the evil spirits.

In the early days the scientists pooh-poohed the idea that evil spirits could have any reference to substantial thinking; then they adopted the gist of the idea of evil spirits in their own assumption that progress could be attained most rapidly through error, albeit "trial and error." They had to have some theory or postulate to make this seem reasonable, so skepticism was postulated and assigned the duty of keeping man conscious of his errors irrespective of whether he might be conscious of creative thinking. In this role, skepticism has been diligent in pointing out errors. This little imp is enjoying a publicity and an activity within the imaginations of men which he never dreamed of before. He has been honored by citations in many reputedly learned discussions; he has been entertained at many sumptuous banquets attended by all the big-wigs of imagination; he has plugged for political aspirants and has all but been elected to the presidency of the United States. Where he has not been honored with an invitation to speak, he has usually been given a "free pass" to get in and hear at least what is being said, to collect fuel for his next bonfire.

Of course the sophistry behind all this is allegedly the postulate that man must avoid error if he is really going to make progress. This is true enough. But does one need



to prejudice his approach to every source of information with the idea that he must first seek out the errors and then, if he can find no more errors, proceed to search for truth directly? The premise behind this sophistry is that man does not yet know everything; indeed what he does know is very little compared with the vast unknown. But does it follow that one should first look for errors, or for that which he cannot use, instead of searching in the first instance for that which he *can use*?

In searching directly for that which one can use, the idea of repentance, rather than skepticism, is a far nobler approach in the recognition of a desire to learn more than the little which one already knows. In true repentance one not only admits the error of his ways, in the presence of an enlarged insight, but he is willing to make some effort toward adjusting himself to this larger insight.

This process of stalling the machinery of thinking by stopping to search out errors before proceeding to search directly for the truth has been repeatedly referred to as at least being a waste of time, and when continually pursued, defeats the end which it ostensibly intends to pursue. Error is the road-block at which the creative activity in the mentality fields of thousands of human beings today is not only stalled but has been stalled so long that they cannot even get their mental engines started. It can do no harm to review the philosophical aspect of this stalling.

Modern philosophers appear to be painfully conscious of this stalling but they do not seem to be able to suggest the exact procedure which is needed to get this mental engine going again. They do not seem to recognize that one of the main difficulties to be overcome is a "hit and miss" timing of their spark-plugs. In other words, the

various philosophical ideas are not firing in a proper sequence so that the various cylinders in a philosophical engine can coordinate each other. The different philosophies do not coordinate their impulses sufficiently to produce a mental engine powerful enough to climb the hills in the mentality fields of modern men.

At the beginning of the Chapter on Modern Skepticizing, it was suggested that the first great stride in the onslaught of skepticism on the modern mind was in the direction of being doubtful about the historical exactness of some of the statements in the Bible. The skeptics encouraged by the attention which they received in their self-styled "higher criticism" of the Bible (which should have been called "lower criticism" inasmuch as it centered primarily on matters of translation and possible errors of transcription in an historical record rather than on an interpretation of the insights there recorded relative to the spiritual development of man) proceeded to propagandize skeptical criticism as a useful component in modern thinking. On the basis of the few errors which they had discovered they began to doubt the validity of faithful thinking in the minds of men.

Succeeding measurably well in the responses which they got from the common mind of man along this line, the skeptics proceeded to emphasize the impossibility of verifying their own imaginative concepts by the same processes which the abstract scientists were using to verify physical phenomena. In other words, the methods and concepts which were useful in studying the infra-conceptive range of the mentality spectrum could not be used un-modified in an attempt to understand ultra-conceptive procedures. The skeptics even doubted the existence of this ultra-conceptive range and proceeded in an endeavor to establish this doubt in the minds of

others. We are reaping today both the whirlwind and the indifference in the minds of men, which these skeptical imaginings have engendered within the mentality fields of human beings. Mentally, we are experiencing "an age of catastrophes."

### A "Response" Philosophy

After some pages of introduction to his estimate of the value of "Response," Heinemann says:

"It is impossible to construct a Philosophy of Response in the narrow space at our disposal. All I can do is to point to the fact that response rather than the elusive term existence provides a key-symbol for the reinterpretation of the different fields of our experience, such as science, art, history, ethics and religion, and that it opens up wide fields for new investigation. Response emerges as a term connecting Nature and History, Matter and Mind, and therefore exercises an important function in bridging the gulfs between these realms. In order to achieve this limited purpose we have to redefine *man as an animal of increased and creative responsiveness, able to respond on different levels of stimuli coming from many dimensions, and to formulate his potentially free answers in a variety of ways.*"

This statement that "Response emerges as a term connecting Nature and History, Matter and Mind, and therefore exercises an important function in bridging the gulfs between these two realms," presents the pertinent question again, why does the imagination of man conceive of nature and history as being separate? Why does the imagination of man conceive of matter and mind as being separate? Why does the imagination of man insist on creating these gulfs so that it can pat itself on the back when it begins to talk about bridging those gulfs? Why is it necessary to redefine man as "an animal of increased and creative responsiveness?" Why define



man in this primitive style as being an *animal* at all? It does not help the engineer much in trying to find out how to get power out of steam to insist that steam be re-defined in terms of its chemical elements as  $H_2O$ .

The problem in hand is to try to develop in a child's growing mind the mental procedures which will give him the capacity to think about how he can increase his own capacity to think. It does not help much to refer to him as an animal and to point out to him that because he is a special kind of an animal he will be "*able to respond on different levels to stimuli coming from many dimensions.*" The trouble today is that the child's mind is being confused by stimuli coming from so many dimensions that he does not know which way to turn mentally; then to add, "*to formulate his potentially free answers in a variety of ways,*" does not help much. I presume the words "*potentially free*" refer to the detached imagination which is envisaged as being capable of answering questions "*in a variety of ways,*" with the hope that perhaps some philosopher some day may be able to tell the child which of those answers may be better than another.

A "response" philosophy may be valuable in turning over the soil in some syllogistic gardens, but it is too primitive a concept to help very much in clearing up the mental confusions of our era. The child's mind is already surfeited with over-much reference to responses to stimuli in his biological classes. Also, the piston in the cylinder of an engine "responds" to the pressure of the gases on the piston head; but the contemplation of such a response does not give much evidence as to how the mentality of the research engineer responded to the desirability of building an engine in the first place; nor, to

the necessity of perceiving the problems ahead of him during the time the engine was being designed.

The child's mind should be given some concepts more directly related to mental perception without cluttering up his mind with concepts relating primarily to animal evolution. There is a perceptive phase in response which might be emphasized well beyond any thought which has been devoted to it thus far in animal evolution; but, that is not within the direct line of searching within this thesis. We are at least trying to think in terms of concepts which relate to *mental* activities and to the capabilities which may be developed within those activities.

Does your mentality field *respond* to imaginative impulses which are devoid of any consciousness of time? Or, does your mentality field *respond* to faithful perceptions within the ongoing continuum of time? Is your thinking a mushroom growth, or has it had time to mature within time? Is your thinking within disjointed bits of time, or does it flow with time?

If Heinemann, instead of dwelling on the primitive idea of "response," had passed directly to the idea contained within its derivative, "responsibility," and had seriously attempted to base a modern philosophy on "The Sense of Responsibility" he might have made some progress in pointing toward a way out of our present mental confusion. Responsibility is a "fruit" from the tree of mentality. The very idea of responsibility is conceivable only within a field of perception. The idea of mental responsibility enjoins the idea of mental integrity; and the idea of mental integrity, when faithfully adhered to, imparts to individuals within the human race some hope of understanding themselves and their relationships to others.

A cooperation and a coordination between responsible mentalities has been basic in the production of such civilizations as man has yet enjoyed and must be basic, within a larger arena of activities, within any future attainment of a better civilization. The imaginary limitations sometimes ascribed to the idea of cooperation as limiting that idea to a *direct* participation in the proceeds of any such cooperation must be here swallowed up within the more comprehensive idea of *coordination*; in which the idea of mental responsibility reaches out into the vast arena of public betterment without any thought of immediate return. It is "bread cast upon the waters" of mental integrity.

### *An Un-Wholly Alliance*

Heinemann's "alliance" response has some suggestion of value in it but alliances can be, and have been conceived, as organizations for promoting evil intent as well as organizations for promoting praise-worthy activities. Mere alliance does not say much about what the alliance is for. It does imply that some agreement, implied or otherwise, has been reached toward the pooling of efforts in a particular direction.

Distinctively creative thinking, however, is concerned primarily with the activities within an individual mentality field. The emphasis at this point has been blurred by our scientific and industrial development. The individual is overwhelmed with the manifold manifestations of engineering equipment in the modern scene. He is overwhelmed mentally on the one hand by the total impossibility of perceiving how all this equipment was created, and on the other, by the insidious insistence in modern advertising of the "ready-to-use" devices which



are represented as being all that a child needs to make him happy.

The modern child is not taught to perceive the genuine mental effort that was required to produce the really worth-while engineering developments. The mental integrity required to plan for, and to design the machinery required for quantity production of industrial equipment is not impressed on the child's mind; in short, the child is not taught to perceive the desirability of training his own mind in the direction of creative thinking.

The *un-wholly alliance* of Imagination, Skepticism, and Criticism has alienated man from his fellow-man, man from himself, his body from his mind, and his mind from the eternal. This un-wholly alliance has separated the mentality of man into so many pieces that he is confused when he tries to put the pieces together, and the depth of his confusion is increased by criticisms, conceived in imagination, which produce more pieces; this fatigues his mental vision and increases his skepticism to the point of skeptical indifference.

Division into pieces and emphasis on pieces has fatigued his will-power to the point where thinking is onerous to him, consequently he does as little as possible, and this little is primarily devoted to the study of some *small part*, with the idea of dividing that small part into something *smaller*; albeit in the hope that this something smaller might reveal to him an avenue of escape from his bondage to analysis.

This un-wholly alliance of imagination, skepticism and criticism has so benumbed the mind of man, with its un-wholly emphasis on *pieces*, that he tries to conceive of himself as being a *piece* within this universe which cannot mean much to the universe, and certainly does not

mean much to himself; and he doubts if it can mean much to any body else. He more or less indifferently studies pieces of the universe in isolation from any significance which those pieces might have to him, except insofar as they might tickle his imagination.

In a world of isolated mentalities some idea of alliance may be desirable but alliance, unqualified, is hardly sufficient in content to support a philosophy of redemption.

Any philosophy adequate to cope with the present situation must have its roots in the eternal. The mind of man must again be restored to the concept that mentality came out of the eternal, has its existence in the eternal, and is willing to direct some mental effort toward the attainment of potentialities within itself, and within the eternal, which as yet have not been achieved.

Many years ago I read a short discussion about the old Chinese Taoism. That discussion is not available to me at this moment, but the following is the gist of what made an indelible impression on my mind:

“When Tao goes, virtue appears; when virtue goes, philanthropy appears; when philanthropy goes, justice appears; when justice goes, propriety appears; and propriety is the *semblance of good faith* and the beginning of disorder.”

This is using anti-climax as a method of instruction; as such, it does not fit exactly into the context of this thesis but what I wish to emphasize here is that, in that far country and at that distant time, the concept of faith as a mental procedure, or at least in its effect on mental procedure, was even then much the same as the function which this thesis ascribes to faith.

Faith is that functioning within a field of mentality which propagates and sustains ideas within the ongoing continuum of time. Whether a collective concept of

basic mass-energy relationships be referred to as altruism, as charity, or more comprehensively by the simple word, love, that functioning of mentality which imparts continuing validity to such mass-energy relationships is *faith*. Even the fallow or relatively inactive periods within faith, though less dynamic, must still supply the motivating mental stimulus which sustains the "life" within any such mass-energy relationships. Within a thinking mass-energy relationship *faith* is the "throbbing heart" which never ceases its activity while thinking continues.

Skeptical science might refer to the above quotation as "an old Chinese legend," but this is one place where the scientific "legend" missed the boat. This *old Chinese legend* was a mental deduction which appeared within the continuum of time, was preserved within the continuum of time; is presented here within the continuum of time, with the hope that modern mentality will not permit its significance to be lost within an imaginary discontinuum of time.

If modern science had put forth as much enthusiasm and effort into discovering the noblest thoughts of men *relative to the potentialities of all thinking*, instead of devoting so much time and energy to the digging up of bones and trying to explain *their* relationship to animal evolution in general, the perceptive capacity within mentality fields of men today might be more in evidence. Even if modern science would permit its animal psychologies to become "dry bones," and concentrate its mental activities on the contemplation of the potential capabilities within mentality fields, progress toward a more enlightened and a more harmonious development within the mentalities of men might be greatly accelerated.



## CHAPTER VI

### MENTALITY ENGINEERING

Mentality engineering is that branch of engineering which deals with the production of thoughts and the arrangement of thoughts into ideas. A thought may be conceptualized within an individual mentality field but ideas are here assumed to be thoughts conceptualized in sufficiently general terms to have a measure of validity within many mentality fields. Ideas are thoughts floating within the ongoing continuum of time; ideas are thoughts launched into the stream of time; ideas are concepts conceived in their relationship to an eternal significance.

In general terms also a distinction may be made between opinions and ideas. An opinion is an individual integration, imaginary or otherwise, produced within an individual mentality field. An idea is an integration of thoughts originating within one or many mentality fields and expresses, or should express, a measure of validity which can be recognized or comprehended within a number of mentality fields. Such an idea preferably includes time considerations within its integration. When the *sense of the eternal* is included in the definition of an idea, the general use of such "ideas" will tend to replace the common use of the word "ideal." This, in itself, may prove to be of some value inasmuch as skeptical imaginations can so easily contrive an excuse or an imaginative reason why "ideals are impractical."

Mentality engineering concerns itself with which way a thought is moving, how fast it is moving and what evidence there is to indicate that there is something ahead in the direction in which it is moving that is worthy of the energy which is being expended. Such mentality engineering as is being used today in the field of physical engineering is largely engineered from the outside; that is, physical engineering imperatives dictate to, and control the mentality of the engineer. This dictatorial relationship in its effect on the human mind extends far beyond the limits of strict engineering. In our industrial civilization the dogmatic nature of engineering imperatives is recognized and experienced by millions of people who are engaged in its industries. Many among these millions are asked to perform tasks which permit very little mental activity. Many of them lose all interest in mental development, which alone can create a real man.

Some of these may become cynical or morose and criticise the civilization in which they live for not giving them a better chance in life. This criticism has some measure of validity in it, but these people should never forget that the great majority of them are far better off than many people who live in less industrialized areas. They should also be reminded that they have far more time available which might be devoted to mental development than their not-distant forefathers had. This brings us back again to the nub of this thesis which is, how can people be *taught* or *learn to desire* an escape from the primitive animal nature that is in them?

### *A Philosophical Approach*

Approached philosophically, one of the first requirements appears to be the reorientation of the mind of man as to what its potentialities may be. If mentality is

the result of mass-energy relationships which emerge at the highest level of development in such relationships, then it would appear that there is no reason to believe that we have yet reached the highest potentialities of which mentality is capable. Indeed, it would seem reasonable to conclude that the possibilities within such mass-energy relationships, at their highest level have, thus far, only been hinted at.

We have in ontological engineering an excellent example of something of the procedure methods which can be adapted to a creative mental program. The first fundamental of that procedure is not to dwell too much on a complete analysis of the *ultimate substance* of the mass-energy relationships which enter into the production of a result, but to concentrate on the arranging of the mass-energy relationships, in each category, which will produce a result.

One feature of these mass-energy relationships is that the exact mass-energy arrangements at one level are not the same as they are at another level. In engineering the mass-energy relationships in metallurgy are not the same as those in steam engineering; and more different still from those in electrical engineering, where both the problem of producing electricity and the problem of the arrangements for using that electricity while it is being developed are present. Just to mention electronics suggests to the engineer a whole field of mass-energy relationships which he does not usually associate with electrical engineering.

Each special field in engineering develops its own concepts relating to the mass-energy relationships within that field. The concepts in one field may be helpful in another; but, the development in a higher level field cannot proceed very far without the introduction of new



concepts which apply directly to effective integrations in that field. This idea of one field being at a higher level than another is mainly a mental differentiation, for the purpose of reference, that largely disappears into the background when an integration of value emerges at a particular level.

For example, the mass-energy relationships within the metallurgical materials which the steam engineer requires for the production and control of steam in his field of engineering are not of particular interest to him *when* he is considering the application of steam to the production of mechanical movements; he is then interested in the mass-energy relationships which are capable of applying the energy within the steam to the accomplishment of a particular purpose. The most outstanding concept in engineering is process; engineering is always doing something or, at least, planning to do something.

In the "Stone Age" of engineering a man could tie a stone on the end of a stick to make a hammer; or he could tie a piece of flint on the end of a stick to make an arrow; or he could take a piece of wood and a thong and make a bow to shoot the arrow. That is, he used the things of nature, such as wood and stone, by shaping them a little, and fastening them together as best he could.

The real Age of Engineering, however, only began after the engineers had learned to create some of the materials, which they then assembled into machines. The engineers first learned to crush mineral laden rocks; then to refine the mineral into metals, copper, lead, zinc, and tin; later iron, and much later aluminum. They learned to make alloys of these metals, which greatly improved the quality of those alloys for many and varied uses. Then the engineers built machines for testing the

quality of these alloys. The proportions of these alloys, and this test data, may tentatively be called "facts;" but, please note that each of these facts is a result of a process.

Such facts are useful in duplicating parts of, or even whole machines, as in industrial manufacturing; but, if the engineer wishes to improve his product, whether it is an alloy or a machine, it is the process relating to the particular improvement which he wishes to make that must be uppermost in his mind. Moreover, if he succeeds in achieving an improved product, one or more of the old *facts* must be superseded; but the processes for determining these facts may remain largely similar and valid.

We have been living in something like a "Stone Age of Ideas." We have been trying to improve our mental efficiency while clinging desperately to fixed concepts, that is, *old facts* whose qualities were neither refined nor varied enough to eventuate into larger potentialities. We should change our conceptual approach to the idea of establishing mental procedures by the use of mental processes analogous in outline to creative engineering procedures.

Engineering dominates the physical world today, for better or for worse. Engineering has transformed solid and liquid fuels, as well as water falls, into power. Mankind today alternately fears and worships power. It was power, created by engineering, that intrigued the Kaiser into thinking that he had an invincible war machine; hence he dared to start the First World War. Between the two World Wars the mass of mankind still placed its *ultimate confidence* in power. But today, many minds are almost incapacitated by mental vacillations between the "fear of power" and the "fear of the unknown."

Over against these "fearful" forebodings, engineering now provides the human race with a productive capacity for satisfying the physical wants of man in greater abundance, and with less effort, than in any other period in all human history. Why then is our civilization so *ineffective mentally*? Physical engineering is not enough; we need some mentality engineering.

And yet, I would not wish to imply that the engineer is better prepared to direct the affairs of state and of society than anyone else, but only that he *ought* to be. The skeptical engineer may be subject to all the limitations of a materialistic scientist; and may be even more firmly entrenched in his exclusiveness because having accomplished some definite things for human betterment, to which he can rightfully point with pride, he may decide to "rest on his laurels," and let society shift for itself.

Obviously, it is in the realm of *mental effectiveness* that our civilization is handicapped. We need a more comprehensive understanding of life and its problems. Physical engineering has supplied the power, and perhaps mentality engineering can supply a comprehensive understanding. Physical engineering has created more things, and then created the possibility of yet more things, than have ever before been created on this earth in a comparable length of time. Why not try applying engineering procedures in the field of mentality, in an analogous manner, with the idea of enlarging our mental facilities?

Mentality engineering accepts the body as the powerplant which produces a form of energy that can be transformed into many forms of energy; muscular energy, nervous energy, and even perceptive energy. Science has experimented with the problems of transforming food



energy into bodily energy, but aside from breathing, and burning oxygen within the lungs, in conjunction with continual heart action, science has not succeeded in giving us much information about how the body grows. Science tells us that the body grows by adding one cell to another, that is, by producing a multiplicity of cells; but, science does not even postulate *how* the imperatives within nature provide for the planning and the carrying forward of living impulses within the body. The scientists make detailed observations about different bodily reactions but the *living processes of growth* continue without much assistance from them. The mystery of the transformation of the blood stream into perception is something more than a "top secret" to them, it is still a *secret*.

Science plans to exist physically, not mentally. A circle is the concept of its mental procedure; or perchance, a helical spiral which rises in contiguous circles with an ever decreasing diameter which indicates that its mental content is becoming smaller and smaller as knowledge increases, toward the point where mechanical automaticity can replace mentality, almost if not quite. The mentality diameter of this spiral is becoming alarmingly small within skeptical minds; but what is more alarming is the percentage of our population which is endeavoring to cling to this small diameter.

Or, the automaticity of progress is sometimes likened to a pendulum which swings to and fro, ticking time away with no least concept of the significance of time relative to life, much less of the significance of both time and energy as measures of value in every genuine concept.

The physical scientists proclaim, "knowledge is power." Then their inquiry into transformations of energy

is *restricted* to physical phenomena without postulating even a concept of the transformation of energy into perception. The general omission of any organized inquiry into what perception might be if expressed in scientific terminology leaves the student's mind undeveloped along any line of approach to the vital content of perception.

### *A Theological Approach*

This brings us to a theological approach to mentality engineering. As pointed out earlier, even physical engineering in its theoretical approach is more nearly akin to theological procedure than to philosophical procedure. Philosophers usually try to explain everything; of course they know they can't but they prefer not to touch those things which they cannot explain. Stark science to date has largely assumed this philosophical ideal to be its own ideal. That is, it stops inquiring when it fears it may not be able to explain. Its general attitude is that it is willing to permit the larger unknown to remain unknown while it continues its investigation into a lesser unknown about which something is already known.

Engineering theories or theology, however, when either of them is effective must include enough of the unknown to eventuate into integrated being. Engineering must eventuate into some mass-energy integration which fulfills some purpose, otherwise engineering could not achieve anything which had not been achieved before. Likewise, theology must eventuate into some conceptual-spiritual integration which fulfills some hope or spiritual ambition, otherwise theology could not achieve any insight which had not been achieved before.

Mentality engineering postulates and contends that

thinking is only possible through energy transformations which occur within mass-energy relationships that are continually changing within a mentality field while thinking continues.

In the interest of further elucidation we are at this point postulating a tentative concept which cannot be maintained with the same degree of assurance or tenacity as can the general postulate that perception appears out of mass-energy relationships at the highest level yet attained in such relationships.

This tentative postulate is a concept of "memory" as replacing the concept of mass; and "perception" as replacing the general concept of energy within physical mass-energy relationships. This may be helpful in visualizing purely mental phenomena.

We have here the concept of "memory-perception" relationships as a conservation idea. In this idea memory is analogous to the concept of mass in the physical world. Memories are an integration of something-or-other which the energy of perception can move about from place to place.

Mentality engineering is concerned with the integration of memories and the movement of those memories relative to each other to constitute the normal process of thinking. In creative thinking perception discovers a new increment of insight which can be integrated into a "body of memories" to produce a new mutation within a mentality garden.

In all growth a *combining form of energy* appears to be present which arranges and combines even the cells in a cellular structure; and designs, rearranges, and combines elemental percepts.

Mathematics may give some information about mov-



ing bodies in this universe, which are large enough to be apprehended by the mentality of man to the extent of having mass enough to be observed by engineering equipment designed by the mentality of man. But, what about the perceptive energy which was able to perceive memories, move them about, rearrange and check their relationships which were antecedently present and acting concurrently as mathematics itself was being formulated?

If we postulate that "understanding" is the slowing down of translations in time and space where they no longer appear as separate continuing phenomena but produce a flash of insight which reveals something of the integrated reality within which both time and space are present, then we may observe that:

The energy of sound waves is transformed into the "immediacy" of hearing. The energy of traveling light is transformed into the "immediacy" of seeing. Physical undulations resulting from touching something are transformed into a sense of feeling, which is experienced in a pattern of "immediacy" and not as a point on a space-time diagram.

The "separateness" of mass and energy, of space and time, or of memory and perception, is each swallowed up in an integration within the "immediacy" of understanding. It is because all these concepts are present in an integrated interpretation that they may be partially understood in their relationships to each other.

If perception comprises the slowing down of impulses or events to a point where they no longer remain separate concepts within time or space but merge into an integration which is well-nigh instantaneous within time, then we may hope *in time* to learn more about the manner of experiencing these relationships.

### *Immediacy and Automaticity*

We have already referred to some aspects of the word "immediacy" as interpreted by skeptical imaginations. It may be helpful, however, to dwell a little more at length on the meaning of this word *immediacy* with reference to an eternal significance as compared with its imaginary significance within a skeptical interpretation.

The violent reaction of a skeptical mind to the phrase "immediacy of faith" is probably the result of the mental incapacity of such an imaginative mind to visualize the intended meaning of either the word "immediacy" or the word "faith." A complete deletion from the skeptic's mind of any concept relating to a continuum of time relative to thinking makes the skeptic oblivious to the significance of immediacy in this phrase. Also his imaginary interpretation of the word "faith" without any eternal-dynamic content leaves a void in his mind which makes that mind incapable of a valid interpretation of the word faith.

A flash of insight is always immediate, or approximately instantaneous, but what the skeptic does not recognize is that the preparation for this *flash* may have continued through days, weeks, or months of contemplation; just as the preparation for a mechanical experiment might be continued through an equal length of time, but when the insight revealed by the experiment reaches the mind of the skeptic his perception of its insight will likewise be equally immediate.

Of course a scientific skeptic might interpret the immediacy of the insight which he experiences as the result of an experiment, as being "automatic." In the absence of any detailed account of how a skeptic imagines that he perceives anything, one must rely on accumulative

evidence of the trend in skeptical minds to evaluate something of the significance of a skeptical trend; then deduce, if he can, the probable mental reaction within a skeptic's mind when that mind images anything in the nature of a new insight.

Inasmuch as the skeptic is apathetic toward the explanation of any of his mental activities it is probable that the act of seeing by the human eye is as good a natural example of the immediacy of perception in the skeptic's mind as could be chosen. The human eye responds to the direct and reflected rays of light which play upon it and "immediately" transforms the physical phenomena of traveling light into the sense or perception of seeing. This sense of seeing is probably interpreted as being "automatic" within the mind of a skeptic when a mass-energy relationship is "triggered" to produce sight.

At any rate the modern skeptical trend toward mentality seems to imply that, outside of his own imagination, whatever perceptual insight a skeptic may achieve is attributed to the result of automatic physical arrangements. We have already referred to some of the far-reaching consequences of this idea of automatic thinking as related to the modern predicament.

Whatever else may be said, it appears that an illusion of automatic thinking is deeply imbedded in, and largely responsible for, the modern trend of *not thinking* at all about mental phenomena. Emphasis at the present time tends in the direction of stressing "the mechanical brain." The mechanical brain in its most concrete form is a machine for solving certain mathematical problems; one feeds the machine with particular data then starts it operating to produce a pre-ordained automatic result. This idea of automaticity carries over into the minds of



many people the thought that thinking within any field of mentality is automatic.

There is a modern push-button idea of automaticity which prevails in the minds of those persons whose mentality leans toward skepticism, even if they would hardly recognize their own minds as being skeptical. The advent of electricity ushered in this push-button idea of automaticity which is very subtle in some of its far-reaching consequences. The uninstructed mind easily assumes that all the processes of nature, and particularly all the processes of nature which relate to *growth*, are automatic.

Herein lies the skeptic's opportunity which he seizes every occasion to exploit: Man cannot know how his body grows, much less can he know how his mind grows; he cannot trust everything that his mind can imagine therefore he must doubt all mental conclusions and, presto, skepticism is inevitable. Thus runs the logic of the skeptic who doubts *all* (?) mental conclusions.

What the un-instructed mind does not see is that engineers had to find out how to generate electricity and then provide the mass-energy relationships for generating that electricity and carrying it as far as the location of a push-button. Not only that, but the engineers had to find out how to arrange other mass-energy relationships beyond the button, such as a light or a motor, which would respond to a current of electricity when the button was pressed.

In the field of mentality engineering each field of mentality must employ its own designing engineer who is capable of arranging mass-energy relationships within that field so as to provide for the generation of perceptive voltage and current sufficient to illuminate and propel a latent concept which that engineer had previously

designed. Then, when the owner of such a mentality field, or some other mentality, presses a mental button a new insight will appear.

Thus, the word *automatic* designates a sort of mental short-cut. The mere pressing of a button is not the *cause* of all that happens. The result depends on what was antecedently connected to the button in both directions; both *from* the direction from which propelling force is available and *toward* the direction in which operative mass-energy relationships were already provided; then, pressing the button produces a chain reaction that culminates in a result.

### *Mental Discontinuity*

The aspect of discontinuity in time, and in possible content, in a skeptical imagination pervades his mental deductions. The skeptic professes to doubt mental deductions but nevertheless appears to place considerable store by his own mental deductions, especially when controverting the mental deductions of others. A skeptical mind operates within a tenuous mental discontinuity relative to its own time and substance content.

The mental images within a skeptical mind resemble instantaneous photographs which might be released in a "projector" so as to give to the human eye an impression of motion. But, instantaneous photographs, even when faithfully portrayed in a moving picture camera, do not reveal the *force* which is propelling the rapid succession of images within the projector at such a rate as to instruct the human eye according to the purpose which may have been present within the mentality field of the person who set the projector in motion.

In many individual minds there appears to be a prevalent *belief* that *mental integrity* is nothing more than a

personal opinion or conviction about one's conduct relative to his own philosophy of life. This is egoistic from the point of view of validity. Such validity as can stem from egoism invariably produces some skepticism. The person who assumes that skepticism is a *natural* approach to all thinking soon finds his mentality isolated from his fellow-men and from living phenomena within the universe in which he lives. With the roots of mentality isolated from everybody and everything related to an ongoing continuum of time, the mentality of the skeptic soon becomes doubtful of himself as well as doubting the ideas of others.

A maturing skeptic, when true to his own profession, often reaches the stage where he has enough faith left in himself to think that he has something worth saying, even though he may be saying, "No one can have faith in anyone or anything that anyone ever said."

Fortunately we have in our midst very few *matured* skeptics because the ordinary "run-of-mind" skeptic could not be a full-fledged skeptic and move about comfortably in modern society. Most skeptics are only skeptical about the things which they want to be skeptical about; they usually desire to know some things with a sufficient degree of assurance to conduct themselves passably well in modern society.

As a result of skeptical diffusions and skeptical indifference within so many mentality fields in modern society there is a *discontinuity in mental integrity* which lies at the root of widely disseminated psychic confusions. Advertising men insist that a little deception in advertising over the radio and the television should be permissible if it is "held within reason." Also, an imaginative insistence that man is primarily an animal is used



to argue that as such he should be privileged to exercise some deception in his own interest.

Scientific skeptics cling more steadfastly to a belief in inquiry than they do to a belief in *what they know*. They talk continually about "facts," which are assumed to be permanent, but which they are continually changing. This makes the public skeptical of knowing anything with certainty. With psychic diffusiveness the public accepts one fact after another without much interest in how those facts were deduced; except that they vaguely conceive that the latest fact was probably deduced from the latest experiment. This wholly neglects the time factor in mentality which carries *values* over from one experience to another.

Like John Dewey, the public has no faith in anything except experience, which being interpreted, means *the latest experience*. Multitudes neglect the time factor in their imaginary musing about mentality, while such mentality as each may have *carries values over*, insofar as they are carried over from one experience to another.

This phrase "carries values over" does not apply to deduced numerical relationships which may be imaginatively conceived to express *values*. Mathematical deductions may be said to have a known value relationship to each other, but mathematical deductions even as related to physics, are "abstracted concepts" which cannot be interpreted as being either *the essence* or *the substance* of the physical particles whose movements are ostensibly being defined by mathematical equations.

Mental concepts, on the other hand, must contain within themselves, however incompletely, something of the very essence or substance of that which is being contemplated, otherwise it would not be possible to reach

“a measure of validity” by the process of thinking. It is only through the process of thinking that man is able to transcend the rigid imperatives of nature which do not permit the freedom of the animals to extend beyond the confines of their instincts. It is mentality which gives man the freedom of transcending his instinct. But, this freedom to enlarge his horizon through choosing and selection does not release him from the natural imperatives which determine perceptive potentialities. It is in this sense of “operating within bounds” that the phrase, *carries values over* from one experience to another, was used.

Is it reasonable for men in their conceit and unwisdom to assume that nature labored in her laboratories for hundreds of thousands of years to produce a capacity to perceive some of her secrets, while modern skeptics assume the privilege of using their imaginations in a manner which might defeat the continuing purposes of mentality?

The emergent energy within Christianity which was manifesting a measure of its vitality at the turn of the present century has had at least a part of this vitality dissipated by skeptical propaganda. But skeptical imaginings are so loosely thrown together that they fall apart when any mental tension is placed upon them. Each such an imagining is a synthetic product and not an integration. It is not a mental alloy. It is chalk and not steel. Skeptical imaginings are wholly incapable of carrying a mental load from the present into the future.

Mental growing signifies the carrying of something from the present into the future. All *growth* is transcending today what *was* yesterday; emerging tomorrow into more than what is present today. Life in its inmost essence is not what *it is* but what *it is becoming*. Life is

emerging within the continuum of time into something more than what it has been.

On this basis mentality, as the highest manifestation of evolution, can hardly be seriously approached as being less transcendent within the ultimate essence of itself. Mentality may be approached as being evolved out of mass-energy relationships, whether engineered by man or by nature; whether produced by engineering selections or by natural selections. Creative thinking in its supreme moments is not what it *is* but what it *is becoming*. Creation is always a process of making or becoming within the eternal something more than it already is or was.

Creative thinking insofar as it is conceived relative to its own processes is something more than fanciful imaginings; certainly this is true if one accredits the general idea of evolution as being anything more than a fanciful dream. If evolution is a sound hypothesis even ideas must move from one mass-energy environment to a more spacious one.

### *Moving from a Physical to a Psychic Domicile*

In one sense the idea of moving from a physical to a psychic environment may appear to be superfluous after all the analogies and comparisons which have been presented up to this point. We have been comparing physical and mental concepts with each other in an endeavor to get some idea of what mentality engineering might mean. This was the only avenue open for moving from an old house into a new one; that is, one could only move the furniture which *was* in the old house. If one desires furniture to conform to new architecture in a new house he must either build such new furniture or acquire it from some place outside of the old house.



This then is a direct inquiry or a review of how much of the equipment in a physical factory might be appropriately transferred to a mental factory. Thinking in terms of what the eye or a camera might disclose, it would appear that the answer is, not much. But we have repeatedly emphasized the fact that the eye and the camera do not reveal all that is there. The engineer arranges the power-plant to produce the energy required to operate a factory. Neither the machines nor the persons working in the factory can see the energy which operates that factory. The "operators" are concerned with directing the machines in the factory so as to produce something useful, or at least something that is conceived to be adaptable to serve some human need.

In a mental factory the power-plant which supplies the power may be outside the factory proper but the "machines," such as the concepts which are installed in a mental factory must either be brought in from the outside or created within the factory. In the growing mind of the child some conceptual equipment must be brought in from the outside, otherwise the child's mentality field will remain substantially that of an animal. If the child's mind, however, is continually filled with concepts and memories from the outside, that mind becomes little more than a phonograph record without any creative capacity within itself.

The best engineering comparison, insofar as I am aware, which can suggest the initial indoctrination the child's mind should receive is the concept of the "residual magnetism" which must be present in the poles of an electric generator in order to start the development of a current of electricity as the armature is rotated in a magnetic field. As the armature speeds up some of the current generated must be "shunted" around the poles

of the generator in order to increase the magnetic flux as the voltage and the amperage of the electric current being generated increases. In a creative mind a "voltage and amperage" of perception is apparently generated within mass-energy relationships akin to, but more subtle than the mass-energy relationships which generate electricity.

The child is born with a rudimentary equipment which is capable of generating some perception. In a sense of speaking the instinct of the child is akin in function to the "residual magnetism" in an electric generator. But the child must be taught how to increase the amperage and the voltage of his own perceptive capacity. As perception increases apparently some of the perception being generated must be shunted back around the poles of its generator in order to increase its own voltage and amperage.

In every field of thought in which man hopes to make any progress he must concentrate on and contemplate evidences which point toward a potential psychic achievement. This contemplation must be faithful to the natural imperatives which are capable of issuing into an achievement; otherwise disintegration and diffusion *toward* primordial chaos will be the result.

This suggests something of the wisdom in nature which provides that the child should depend upon its parents for guidance through a much longer period of time than is required for young animals where only instinct is depended upon for guidance. Even though some human beings approach the mind as if it were an imaginary device, nature is more serious and more praiseworthy in her approach to the safeguards required along the way while producing genuine mentality.

Whether or not mentality was evolved out of primor-

dial chaos is a question which can be left to those who wish to cavil about the possibilities of further mentality evolution. We are here interested in how the potentialities within a mentality field may be developed into overt psychic achievements. It matters little at what stage in mental development this conversion of its potentialities into achievements occurs, it is the only avenue of approach toward a further evolution of mentality.

If selective integration is the process by which such mentality as we now have reached its present stage of development then it would seem to be reasonable to assume that the *recent* stages in that development would be the only place where one could hope to find much information that would be useful while reaching toward further mental development. "Recent" in the above sentence was used as referring to that development in mentality which has occurred since man became capable of transcending his animal instincts,—since mind became mind.

Through all the eons of time while instinct was the only guiding impulse within living creatures it appears that integration was the process by means of which each individual was relieved of consciously remembering everything that happened along the way that was necessary to the carrying on of his living processes. Instinct appears to be memory kept in "cold storage" so that it does not deteriorate, and yet it is present as a kind of perception which selects the food which the animal can eat and rejects that which he cannot eat; in short, the animal already selects that which he can do, and passes by the things which he cannot do with impunity.

When man became a conscious human being so that his actions were not wholly restricted by his instincts



the possibility of developing a genuine mentality field was already in the making. It is not strange that among primitive men the development of this mentality was slow as each individual felt his way toward the freedoms that he might choose which did not conflict with natural imperatives. The body of man today is governed by thousands of instinctive patterns which he dares not interfere with at his peril.

The gist of this last statement undoubtedly lies at the root of the lengthened period of growth from infancy to maturity required by nature when mentality is of primal importance. Fragmented knowledge is not enough, wisdom is required as man transcends his instincts and emerges into an ever wider field of free activities within the natural imperatives to which he owes his very life blood. All the higher mental and spiritual satisfactions to which he may aspire apparently arise out of similar imperatives. Mental and spiritual achievements, from an evolutionary standpoint at least, are attainments and not privileges; they must be engineered out of what has been previously integrated, or at least, out of what is antecedently concurring at the moment within a present integration.

### *Conceptualization*

The modern mind is so impregnated with the idea of skipping or jumping from facts to fanciful imaginings, and back again to facts, without any bridge across this yawning chasm that many minds have become almost incapable of cogent thinking. Confused minds are so steeped in skeptical misgivings that the very idea of mental integrity sounds fantastic to them. How or why has such a nebulous concept of thinking been developed? This nebulosity has developed within an era which is approp-

riately defined as a scientific era because science has been its dominating watchword.

Science and scientific methods have dominated our whole school and educational systems. It is impossible in a few words to outline the intricacies which lie back of the conceptualizing trend that has forced itself to the surface during this age of accelerated mental confusions. A dominating factor in this complex movement appears to stem from the changing attitude towards facts themselves within a field of science itself.

In the early years of the present century a prevailing belief in progress produced a spirit of progress which promised to carry everything before it; wars were envisaged as being a thing of the past; wars belonged to a primitive idea of progress which had been outgrown; evolution was coming to its own; scientific skeptics would dispense with primitive beliefs by substituting for them scientific facts which would be a sufficient guide for progress onward and upward forever. Within the continuum of time, however, scientific facts were so frequently remodeled to conform to later scientific data that human beings began to recognize that scientific facts were little more dependable, as guides to thinking, than were the old pluralistic gods to which primitive peoples had given their allegiance.

But allegiance to scientific facts produced some localized results, particularly in the fields of engineering where human drudgery was being replaced by machines. This practical application of scientific principles to the serving of human needs was not overlooked in propagandizing science itself. This engineering development not only provided many conveniences for the physical comforts of man but it learned the way of producing delicate scientific instruments which were the means

of extending science into the unseen world within the infra-conceptive band of the mentality spectrum. Thus the hold of science on the mind of man was expanded into an unseen realm of nature which man could not apprehend directly through his five senses.

The legend of the *certainty* of scientific facts has persisted within the modern mind, in spite of numerous changes in abstracted ideas that were once accepted as facts, until that mind pays homage to a greater plurality of gods than ever before in the history of mankind. Of course the stark scientists will insist that they do not look upon their facts as gods in the sense in which more primitive people did. But many scientists insist that their facts are more dictatorial than even the primitive gods were. Man ignores scientific facts at his peril. This is true within the minutely relative setting in which such facts are couched; but their obtuse bearing on living processes is so far removed from fulfilling the total requirements of life that their relativity to the genesis of thinking processes is remote indeed.

Science today admits that its symbols are beyond common sense interpretation. Science has moved into the mentality realm of *uncertainty* which the scientifically minded vociferously proclaimed in the early days of this present century it would deliver us from. The uncertainty which skeptical minds criticized in theology at the beginning of this century they have now discovered in their own school of thought, in the very forefront of their own scientific procedures.

This places squarely before us the outstanding importance of conceptualization in all thinking, and particularly in creative thinking. Concepts are both the hammer and the anvil on which thoughts are hammered out. In one sense concepts are more than tools to be used in the



formation of ideas. Tools belong primarily to conceptualized things in the physical world. More particularly they are integrations of mass, or integrations of mass-energy relationships divorced from time. Tools and machines are specifically engineering equipment.

Ingenious conceptualizations were required as an antecedent to the designing and manufacturing of these tools; but clearly such conceptualizations were not the tools themselves.

When emphasis is placed on the meaning of concepts relative to thinking itself, rather than on a relationship between abstracted symbols, thinking may then take on a living significance. Our scientific era has depended for its inspiration on the mental concept of a falling apple. The analysis of this fall by the use of mathematics gave an impetus to the study of mathematics and evidently implanted in the minds of men the desire to partially elucidate other forces in nature by this same use of mathematical symbols.

Force being something which one could not perceive directly by his five senses, this partial revelation of one of nature's secrets stimulated the minds of many men. The fact that this use of abstract symbols revealed something about the unseen factor in all nature which is continually arranging and rearranging relationships within nature in such a manner as to produce useful achievements induced the proponents of mathematical science to proclaim that, "When one understands a mathematical law of nature, one understands as much of nature as can be understood at all."

When an epoch stressed the fall of an apple as a concept worthy of recurrent emphasis in the minds of children in each succeeding generation it could hardly be expected that emphasis on living phenomena would not

only be neglected but even discouraged. In other words, when this trend in thinking became indigenous as an epochal characteristic it is not strange that mentality as the highest expression of mass-energy relationships should be neglected in favor of less subtle relationships which could be approximately expressed in mathematical equations.

### *Analysis, Synthesis, and Criticism*

Could any school of learning which places the "analysis of a fall" at the beginning and center of its conceptual system hope to lead toward anything but a "falling" emphasis on mentality? This declining emphasis on mentality, in favor of lesser relativities, inevitably led to a declining emphasis on any or all concepts which might refer to or point toward a living phenomena that is related directly to a preparation for a future thought. Thus a diversion of thinking into physical channels, rather than thinking about living thoughts, has led quite directly toward mental confusions and the neglect of mental living.

When the apple fell from the tree it released its hold on the tree of life. There was nothing left for it to do but to fall to the ground and begin to disintegrate. The apple did not let go of the tree, however, until after it had made a preparation for a future life.

How did the apple in the tree engineer its preparation for a future life? Was the intelligence which engineered such a "secret" achievement in the apple or was this directive intelligence made available by the "laboratories of nature"? At any rate, thinking about how the apple came to be fully integrated in the tree gives one much more to think about than simply figuring out how fast an apple can fall from a tree to the ground. Think-

ing about the formation of an apple in a tree introduces to the mind many more intricacies of nature than simply contemplating its fall from a tree. How did the apple select the ingredients out of the soil appropriate to the making of an apple seed? Thinking about this formation of an apple seed also introduces the mind to living phenomena which resemble and presage the functioning phenomena of mentality.

Science has not succeeded in synthesizing an apple in a tree; much less is the general concept of the scientific method capable of synthesizing an apple seed. Synthesis is commonly conceived as a combination of previously analyzed elements. It is not compatible with the idea of including the unknown within its makeup. Is it reasonable then to use such a synthesis *to dictate conduct* within an enlarged arena which includes mass energy relationships other than those consciously included in such a synthesis?

Integration includes whatever of the unknown is necessary to complete that integration. A concept is an integration of percepts. Thinking to some purpose is an integration of whatever perceptive increments are necessary to eventuate into a perceptive achievement. An idea is an integration of concepts which are sufficiently intelligible to a number of persons so that thoughts can be communicated from one mentality to another.

Synthesis implies analysis, previous division into pieces; it implies a knowledge of those things which are being synthesized and thereby places the emphasis on what is more probably knowable rather than on a direct inquiry into *the as yet unknown*. Integration on the other hand, implies growth by the addition of increments to something which already exists, thus producing a larger or more vital *whole* than existed before.



This places the emphasis on an integrated result rather than on an analysis of *some* of the elements which may contribute toward an integrated result.

Analysis or criticism breaks both time and space into fragments and produces the necessity for a fragmentary concept of thinking. Imagination answers this fragmentary call by assuming itself to be independent of both time and space. Like an instantaneous photograph it reveals nothing except what is conceived to be immediately present in the form of an image. It may indeed imagine time as being a continuum but such a continuum is not conceived to have any relationship to its own existence.

Integration and faith each carries within its initial concept the idea of dimension or continuity in both time and space. The very thought of integration carries with it extension in space and continuity within time. The concept of faith loses its very essence unless it carries values over from the past into the present and on into the future.

One person who reviewed early portions of this thesis said, "I am amazed at his sweeping castigation of analysis and criticism. Both of these are repudiated." On his next page this same reviewer referred to me as being "ultra-critical." However, he did not try to resolve these two statements into a creative procedure.

This reviewer apparently did not recognize that what I have criticized is *critical procedure*, and nowhere have I objected to *constructive review*. At the very beginning of my discussions of the "devilish impulses of imagination" I said, "If those who rely on their imagination as a mental guide would use only their constructive imaginings, the result would not be so bad." This is the dis-

tion that I have endeavored to maintain throughout my discussion of critical impulses. What I am objecting to is the critical attitude engendered by skepticism, and the attempt to exalt criticism to the honorable position of a profession.

In discussing critical thinking more directly, I said, "Critical thinking is the stock in trade of a skepticized mind, and the resulting mental restrictions shield that mind against the entrance of new ideas from within that mind itself. This blanking-out process has restricted the standard mental vision of today to such an extent that any new idea must defend its right to call itself new; it must prove that its parents were capable of giving it birth." The unbeliever can exercise his imagination freely in his criticisms, inasmuch as he has no fear of contradicting himself, because he has not yet formulated any time-carrying beliefs which he might contradict.

The other criticism by the reviewer that my thesis is *ultra-critical*, touches another weak spot in the critical thinking of today. The critical thinker assumes, without substantiating his assumption, that criticism is, as a matter of course, one of the methods of improving the human mind; and the critic is usually willing to bolster himself with the assertion that, "everybody knows that"; but when anybody is bold enough to criticize *criticism* that is being ultra-critical. The critical attitude of the critic has developed into such an habitual uncritical attitude toward criticism that the critic may stand squarely across the path to progress and defend himself by arguments which are contrived in the critic's own imagination, with little or no reference to the natural imperatives within the total situation that confronts an innovator.

More thought and energy has been expended on criticism in this thesis than is my wont; but when mental robbers stand, gun in hand, ready to fire at you it is necessary to fire some shots, at least to scare the robbers away, even if you do not shoot to kill. A little mental offensive may be helpful in gaining a mental-hold within the mentality fields of those who may be counted upon to stand with me in defense of the time-honored role which faithful thinking has played in the development of mentality through the centuries.

The concept of a scientific-theology as used in the early part of this thesis, in one sense might be referred to as ontology. However, ontology when defined as "the science of real being" might be restricted too much to an analytical approach through what is already known; it might place too much emphasis on an "illusory definite," instead of emphasizing a theological approach in the sense of including some postulate related to a basic explanation of the significance of thinking itself.

The introduction of a triumvirate of Analysis, Synthesis, and Criticism to replace faith as a governing norm in an approach to all thinking has decreased mental inclusiveness with a resultant neglect of mentality, rather than stimulating an interest into an inquiry relative to the potentialities within a mentality field. The triumvirate of analysis, synthesis, and criticism is in no-wise mentally equipped to carry the load imposed on faith during genuine creative thinking. No one of the three members in this triumvirate is even assumed to carry anything into the future. They may reach into the past and imaginatively bring something forward out of that past and drop it on a doorstep in the present. If one wishes to have this luggage carried forward he must send for another transportation agent. Their transporta-



tion lines do not extend into the future.

Call it philosophy, call it ontology, call it theology, or call it what you will, is it not about time for science to discontinue trying to disown its own mother, to return to the household of faith, and to begin to teach its children, at least, to begin to think about *thinking about thinking*?

### *A Perspective Responsibility*

An effective thinker must always assume a perspective responsibility relative to each of the concepts which he uses to express an idea. Without a sense of perspective responsibility within each concept that one uses his speech may disintegrate into imaginary mouthings which can mean nothing to his neighbor and oftentimes mean little more to himself.

During the early decades of the present century a sort of scientific craze developed which insisted that everything be reduced to absolute zero as a starting point for whatever mental deductions one might wish to make. Engineers were already familiar with thermometers for usefully measuring temperatures within those ranges of temperature that were instructive to them during the fabrication of machine parts, but science insisted that the concept of an absolute temperature was useful in mathematical deductions and consequently talked and placed a great deal of stress on the discovery and significance of absolute zero.

If this idea could have been left in the laboratory as a kind of mental stimulant to those who wished to speculate about it, it would not have been so bad; but the idea was introduced to the public as indicating that all thinking should start from absolute zero; all thinking should start from *scratch*. This gave the scientific skeptic a com-

fortable feeling of superiority without even having to do any imaginary thinking to establish his claim to superiority. The idea of starting from scratch in all thinking relieved him of the responsibility of going to church; and even convinced him that all religious concepts proceeded out of the fanciful end of imagination and therefore did not have any content in them which could be of any value to him. The delusion which he was harboring in his own mind, by ascribing it to another, completely blanked-out his normal mental procedure of requiring *proof* before reaching a mental conclusion.

In engineering, concepts do have a perspective responsibility within them; that is, they must contain within themselves sufficient comprehension to fulfill the function for which they are contemplated. An automobile engine, for example, must be capable of propelling an automobile through an appreciable length of time; if not, its conceptualization was incomplete. Merely imagining a synthetic combination of parts is not enough.

Likewise in mentality engineering the concepts which are used to express an idea must be perspectively capable of eventuating into a mental achievement. A perspective responsibility must be envisaged by every creative thinker if a valid result is to be achieved. All serious thinking is a process of producing an integration which did not exist before. We have already referred to the adding of a column of figures as a process of integration. This was used to outline the simplest form of integration, but here we wish to place the emphasis on the concept of each figure in that column which remains unchanged as between the time when that figure was written down and the time when it is being conceptualized into an integration. A mathematical figure is the simplest illustration of a scientific "fact" known to man. Fig-

ures are only abstract symbols, however, and in no-wise represent the essence of that which may be represented by a figure.

Life is something more than the assembly of a number of figures. In view of the enormous complexity of the parts of the human body, which are here assumed to be mass-energy relationships, concepts relating to human phenomena cannot have the exact definition of a figure, but once a concept is postulated relative to mental activity it must be rigorously applied within the range of its conceptualization if reliable deductions are to be reached.

The perspective responsibility in faith, for example, must recognize whatever of value was brought forward from the past into the present and must not only carry that value through the present but must add some increment of value to the total value that is being carried into the future. If the concept of evolution has any genuine content in it, some such carrying process as this must be visualized to take up the burden which instinct has carried forward during all the un-numbered centuries through which instinctive animal development occurred.

Of course some imaginative minds may insist that all improvements or mutations in animal life were accidental. But even a skeptical scientist does not leave science in the custody of an untrained mind to be developed accidentally. Childhood has recurred rather too often and too methodically to be considered accidental. Therefore, the longer period of childhood required for development from birth to maturity in human beings, as compared with animals, can hardly be considered accidental. This lengthened period of dependence on its parents during the process of reaching maturity must represent a natural imperative in the upward trend of evolution.



An attempt to fill the child's mind with facts which he does not yet know how to use, is hardly adequate to answer this call of nature without instilling into that mind something of the wisdom necessary to use facts intelligently.

Instinctively the child rebels against being regimented by facts alone. It is precisely because he is emerging from his instinctive obedience to what *has been* into a hope for a fuller, freer expression of what *can be* that, though yet perhaps only half-consciously, he desires to know something about how he can determine within his own mentality field a program for moving forward to beyond instinctive guidance alone. The forward urge in his instincts is already reaching perspectively toward something beyond what he has been.

Perspective responsibility is concerned with time relationships in combination with mass-energy relationships. Certainly if evolution is a cogent postulate mass-energy relationships may be accidentally or otherwise arranged to exhibit activities of many kinds. But if perception in a sufficient magnitude to be referred to as conscious perception, appeared only after the cumulative integration of characteristics which were carried forward through a time continuum that requires mathematical figures to express an adequate concept of that length of time, then the only cogent conclusion would seem to be that insofar as mentality as we know it is concerned *time*, or the eternal as a process within time, is irrevocably fundamental in any approach to an understanding of the activities within a mentality field.

We have already referred to the fact that neither our five senses nor any of the methods which science has as yet explored can reveal to us any physical concept of what *force* is. Likewise any physical concept of *time* is

equally elusive. None of our five senses and no scientific instrument yet devised is capable of evaluating a continuum of time in the sense of recording what is registered on that continuum.

### *A Memory-Perception-Time Concept*

In our own postulate of memory-perception relationships we have a concept within which an idea of time may be mentally arrived at. If perception conceives something which can be carried forward as a memory, and then that memory is perceived as something which was carried forward, we experience a sensation of time. In whatever way we may attempt to explain instinct it remains as something which is carried forward through time; it is an eternal aspect of reality. Instinct is something which is eternally carried forward through time as a residual beginning of any interpretation whatsoever.

Mentality is the only means yet known to man of interpreting anything. Interpretation signifies explaining something in intelligible concepts; and concepts are intelligible only within a mentality field. In whatever way comprehension may have evolved out of instinct, instinct was antecedent to comprehension if an evolutionary concept has any validity whatsoever.

In any valid interpretation of anything, therefore, we have the compound idea of memory-perception-time within a mentality field as compared with the compound idea of mass-energy-velocity relative to physical phenomena. The interpretation of energy in the field of physics is usually conceived in terms of velocity which can be approximately visualized by mathematical symbols as such energy is used to move mass-particles, or larger integrations of those particles, hither and yon. But mathematical symbols, at least insofar as they have yet

been applied, cannot even approximate an explanation of the function which perception fulfills in the moving of a train of thought forward through time; much less can they explain the carrying forward of perceptive memories through time.

Mass and energy may periodically change their relationships to each other through a manifestation of changes in velocity. But, time continues on forever; whatever exists appeared within time and if it continues to exist will continue to exist within time. The poet was no idle dreamer when he said, "And departing leave behind us footprints on the sands of time."

The poet was not referring to physical footprints, as on an ocean beach however, which might be swept by the next succeeding tide into endless oblivion. The poet was referring to an imprint which an individual may make on the pattern of time. Such imprints may be eternal insofar as their influence is carried forward within the continuum of time. In such a concept of the significance of time a moving picture camera cannot reveal anything of its true measure of validity. Such a camera gives us only fragmentary peeps at momentary mass-energy relationships.

Linkewise imagination is wholly inadequate to interpret anything which moves within the continuum of time because the concept of imagination is an *imaging*, or series of images, which are assumed to be mental images within a moment of time without reference to any previous existence or any future existence of that image. Images within the imagination are "graven images" which do not *live* long enough to even be cut in stone or engraved in metal. Is it any wonder that modern mentality is *uncertain* in its vision?

It is only through the cooperative-coordination be-



tween mentality fields that something of this uncertainty can be alleviated. Only through perspective conceptualizations can an individual learn to respect himself as well as his neighbor. Faithful thinking, not imaginative musings, can reduce mental antagonisms and pave the way for fuller, freer mental achievements.

### *Incentives and Achievements*

Up to this point this thesis has been concerned primarily with thinking about what mental procedure within its own domain consists of, largely irrespective of what *incentives* may have been present to stimulate mental activity. In genuine thinking, particularly in creative thinking, extraneous incentives are usually absent and if not are often deleterious to mental integrity. When a mentality field is concerned with the making of conceptual integrations and their use in valid mental deductions the main incentives are indigenous in this process.

However, when imagination is assumed to be the fundamental basis in all semblances of thinking, the problems of inciting or stimulating one to think may become quite irrelevant to the process of imaginative thinking itself. In modern proprietary thinking commercial gain or self aggrandizement of one kind or another may quite overshadow strictly mental considerations. With the lack of scientific emphasis on thinking, as such, a lack of depth in the modern mind makes that mind almost dependent on stimuli that come from outside sources.

This leaves a modern mind adrift in an ocean of diffusiveness without chart or compass to get his bearings within a murky darkness that is largely self-imposed by his own indifference toward mental potentialities. This is not quite his own fault, however, because he has not

been instructed in our public schools relative to the genesis of thinking in a mentality field. This neglect cannot all be placed on the doorstep of the scientist because some of the modern mental diffusiveness stems from self-assertiveness within diversified religious groupings also.

During our modern era the so-called liberal churches have almost surrendered their birth-right to the laboratories. This has resulted, in large measure, from dogmatic-skeptical thinking. Dogmatic sectarian groups have been organized which were so skeptical of each other that they could not agree on any program of religious education which might be offered in our schools. This left the field wide open for scientific skepticizing which replaced the warp and woof of truth by the cross wires of a sieve. *This sieve retained only factual pebbles while permitting the flux and flow of life to pass through.*

Society will probably have churches and laboratories in its midst for many centuries to come; but the important thing is the *trend of thinking* established in those organizations by personalities who direct them.

Charles Clayton Morrison, in a recent discussion relating to ecumenicity, points out the "sin" which resides in the refusal of the protestant denominations to come together in a more united effort against the chaotic tendency of our times. He did not directly relate his discussion to the bearing which it has at the level of childhood education, and to do so is to stir up something like a hornet's nest around one's head. As I see it, this failure of the protestant denominations to come to a sufficient agreement on *integrable* fundamentals so that those fundamentals could be taught in our public schools means that their children, as well as the children of all those parents who do not espouse any religion, are exposed at the most sensitive age of their development to

a mental atmosphere *polluted with skepticism and all the other "isms" which it dominates, and is associated with.*

With our encyclopedic concept of knowledge we are now living in what might be historically designated as "a dinosaur age of thinking." Our thoughts are centered on producing a mass of mental deductions rather than concentrating on an improvement in the fruitful quality of the deductions arrived at. A reduction in weight carried is a first requirement toward increasing the possibility of climbing the ladder of evolution more rapidly. We must learn to think the thoughts which will carry the germ of the next creative thought within itself so that we can dispense with the carrying of a vast bulk of data forward with us. This again places the emphasis on wisdom within an eternal process, rather than on mere knowledge.

In any event, ever since the turn of the midpoint in our present century, there seems to be a few mental breezes stirring which promise to reduce the density of the skeptical fogs that have obscured wisdom as an eternal process. These breezes have not yet reached any definite trend in direction, and some of them are as yet murky, but at least the mental atmosphere is stirring a little.

Faith is gaining in the ascendancy for honorable mention as a guide for living aspirations, over animal impulses and impromptu imaginings. Faith is still too often used in rather a static sense as merely synonymous with belief. In many cases where faith is used, largely in a static sense, it continues to carry something of an eternal and a dynamic significance with it. This is in the right direction, but both its eternal and dynamic content



should be more positively stressed. The modern skepticized mind usually chooses to ignore this eternal-dynamic content in faith completely, because on the propaganda level the skeptic does not appear quite so vacuous by comparison.

In Chapter IV, in the middle of a quotation from Weizsacker, we read:

“On the level of social order and of the mind, it follows the same path from simplicity to differentiation that we witness in the history of nature generally. The 19th century faith in progress spent itself in the contemplation of this phase.”

But who spent that faith? Was it not the skeptics who offered nothing constructive relative to the eternal to replace what they spent?

The first sentence in this quotation defines the whole skeptical approach to an interpretation of nature: “—— it follows the same path from simplicity to differentiation that we witness in the history of nature generally.” “From simplicity to differentiation” defines quite exactly the skeptic’s trend of thought, insofar as he thinks at all. After an imagined simplicity as a beginning, all else is diffusion. Is this all that can be had “On the level of social order and of the mind?”

There is no thought of selection and integration in such a doctrine. How could such a skeptic conceive of faith as being anything other than a “naive belief?” Faith, as having an eternal significance, appears to be beyond the thinking capacity of the skeptic. The idea of increments of perception becoming integrated into a larger body of perceptions, previously integrated during the continuum of time, does not seem to be intelligible to him. But even in all physical *growth* human beings do

recognize that something of this nature does occur. Is it not reasonable to assume that mentality may grow or evolve along somewhat this same plan?

In the muddled thinking which has come to the surface during our scientific era no small part of the muddle was probably caused by the un-thinking tendency in skeptical minds to separate the incentive to think from the process of thinking itself. On the level of this incentive some good thoughts may have been instigated by a genuine desire on the part of a skeptic to right some wrong which he may have directly perceived.

On a personal-incentive level some of the things which I have said about skepticized minds may appear to be a little harsh. But it must be recalled that I have disavowed any intention of impugning the motives of any person. I have endeavored to make a forthright presentation of the postulate that "un-belief" cannot be a valid factor in creative thinking.

### *Memories, Facts, or Beliefs?*

If one's mental activity is impeded by a plurality of un-beliefs the synthesized result will be skepticism. This modern skepticism is not manifested so much in the linguistic expression of the merits of skepticism, such as took place in earlier decades of this century, but it appears in mental impulses which emphasize the role that *negatives* are assumed to play within an imaginary concept of how the mind of man may operate. These un-beliefs manifest themselves in an indifferent complacency toward the potentialities of mentality, and the synthesized result is that multitudes of people simply drift in a tide of aimlessness within an imaginary concept of futility. With nothing but the imagination to stem the ebbing of this tide, this ebbing wave carries everything

before it and the general aimlessness is swallowed up in an ocean of fluid formlessness within countless mentality fields.

Mentality engineering insists that growing boys and girls should be instructed in the art of thinking, at least to the extent of understanding that their own thinking proceeds out of the concepts which are in their own minds. Each of them should be led to perceive that a new invention or creative thought proceeds out of a new arrangement of concepts which did not exist previously in the mind of an inventor until after he had arranged those concepts so that they could become integrated into a new thought.

Faith is not one great *shove*, which keeps a human being floating in his mental atmosphere, but faith is an integration of myriads of hopes and evidences which are capable of carrying an individual along with the continuum of time. It is only after the integration of the essence which is contained within a great number of lesser beliefs that a great faith appears; or in engineering terminology, the effective energy of faithful thinking is made manifest in a beam of insight which reveals new possibilities ahead.

The engineer recognizes the human body as a marvelous example of engineering ingenuity. The mentality engineer recognizes an *idea* as being no less marvelous as an engineering feat. A mentality engineer however recognizes that some formal structure must be envisaged as being associated with manifestations within mental procedures. Some comparisons with the physical body may present a valid content for further contemplation.

Everybody knows that the body ceases to live when the heart stops beating. Many people are also aware that impediments in the blood vessels which resist the



action of the heart in pumping blood to all parts of the body cause high blood pressure. These people do not always go on to analyze the manner in which the blood stream is purified, however. This purifying of the blood takes place in the lungs. We are not interested here to analyze just how that purification is secured but what we wish to emphasize is that the purifying process occurs while the blood continues to flow, which flowing is caused by the continual beating of the heart. In short, purification occurs not by trying to increase the burden on the heart but by purifying that which the heart is causing to flow.

Faith is the heart of the mind. When it stops beating the flow of mental percepts and all that is associated with them stops. Mentality is dead. Beliefs are the cells of a mental structure. Just as the body may be conceived as being built up by a multiplicity of cells, so "mental bodies" or *ideas* may be conceived as being built up of a multiplicity of beliefs. These beliefs are memories called out to aid in the construction of an *idea* just as workmen may be called out to aid in a construction job. Memories may sleep through the night just as physical workmen do and they may not be wide awake when they go to work, and may not always be perfect in the performance of the task assigned to them, but without them the work of constructing an idea could not go on.

These beliefs, like the cells in the blood stream, must be periodically rejuvenated if they are to continue to perform the functions assigned to them. If the orderly procedure in the discharge of their functions is interfered with by some agnostic or skeptical obstruction placed in the path of flow to and from the beating heart of faith mental blood pressure will rise, and there is no

evidence that *high* mental circulating pressure is any more desirable than *high* physical blood pressure.

This reference to faith as the throbbing heart of mental activity suggests another comparison with the human body. Low blood pressure, or anemia, may reduce the healthy activities of the human body. I believe the doctors use what they call a "blood count" as the most reliable method of diagnosing anemia. This blood count, as I understand it, gives the physician a record of the red corpuscles per cubic centimeter in the blood stream.

If beliefs are the red corpuscles in the blood stream of thinking then the function of a mental physician is not to reduce the number of beliefs in that stream but rather to increase the vitality and the number of red corpuscles in the blood stream of a thinking procedure. Effective thinking is not produced by plunging a dagger of agnosticism into faith nor by rendering a trend of thought anemic through a skepticizing reduction in the vitality of its beliefs. This analogy must here be left incomplete but it does suggest a relationship between beliefs and faith which may be helpful in establishing the futility of negative concepts.

The acute problem of our age is to stamp out the *negativism* in skepticism from the mind of man. Human beings must be brought to understand that mental integrity, and not skepticism, is the natural environment of a healthy mind. Faith rooted in the eternal, and not imagination with its illusory detachment from time, is the throbbing heart of mentality.

The first statement in the catechism of a scientific skeptic is, "I will *not believe* anything that is *not proved* to me." Then he is so anxious to get at his critical procedure that he forgets to prove that doubt was ever con-

structive in producing anything. He even forgets to come back and prove this later. The most charitable interpretation of this predicament is that the skeptic fails to distinguish between an incentive and an achievement. As man emerges from instinctive achievements to mental achievements such a confusion of mental incentives with mental achievements is not astonishing. But what is astonishing is that a man who presumes himself to be intelligent could be so negligent in the proof of his first conclusion upon which he is ostensibly trying to erect a school of learning.

The scientific skeptic continues to neglect any proof of how un-belief can be transformed into anything constructive, and proceeds to deceive himself by using other equally unsubstantiated beliefs in his imaginative deductions. He proceeds to emphasize memory and memories of scientific deductions by insisting that his children should be instructed in these timely memories. He insists that his children should learn to use these timely memories in their imaginative deductions. He neglects to observe that when memories are recalled as active beliefs in any trend of thought they are already *beliefs* irrespective of their age or content; they are not a direct perception of what is immediately in front of the perceiving eye.

By referring to his scientific deductions as memories while referring to religious deductions as beliefs he could insist that his memories were something more immediate and more tangible than religious beliefs. By the use of his detached imagination he could imagine that his beliefs or memories were more valid than other beliefs which were not of such recent vintage as his own. There was a little mental incongruence here but he filled the gap by insisting that the memories which he used were



of such a recent vintage that anyone could repeat his experiment and come to exactly the same conclusion that he had arrived at. But as science progressed the number of these experiments became legion and the cost of the equipment for repeating them was not available to the ordinary man; therefore, the public should accept his scientific conclusions "on faith" without insisting too much on knowing all the procedures.

This separating of scientific memories from such memories as other people may have had relative to living phenomena was quite definitely stratified in the mind of the scientific skeptic by referring to scientific memories as "facts" and to all other memories as "beliefs." Thus a *scientific definite* was posed against religious beliefs, or any other mental deductions which might be arrived at through any other process of conceptual procedure outside of a scientific method. When scientific deductions were made from scientific memories by the use of the imagination these deductions were often accorded the status of scientific facts even though the binding material between the original scientific memories was only imagination.

Scientific memories are *always concepts* and not the things themselves which they are interpreted as representing. Such memories, within any realistic interpretation, are carried as beliefs within the mind of anyone who later contemplates their significance. In this *belief form* scientific memories are often interpreted as having a relevance to living phenomena which they do not possess. In this guise scientific memories become a superstition which affects the lives of many people in a quite misleading manner.

It was through some such role as this that an "illusory definite" within science captured the allegiance of mul-

titudes of loosely organized minds. Of course this definite was not inclusive enough to be an adequate guide through life and when imagination was presented as the only other supplementary guide through life these simple folk lost all sense of their mentality having any definite relationship to a continuum of time. This loss of perspective responsibility produced a mental confusion which blurred the distinction between an incentive and an achievement. This tended to blur all mental distinctions.

### *Doubt or Selection as an Incentive*

With the aid of mentality engineering we have chased the "lion" of skepticism to his lair. Though he roars on occasion against all catechisms he nevertheless, in one form or another, lets the world know that his approach to any semblance of a thought is to plunge that semblance into an acid bath of skepticism. What are the acids which he uses in this bath? The skeptic does not exactly say, because he never defines his own imaginary thoughts relative to constructive mental procedures, but he does not hesitate to use these undefined acids to destroy whatever thinking someone else may have done. Few scientific skeptics, however, are hard-boiled enough to insist that the only way in which one can find out whether a man is alive is to toss him into a vat of acid.

This "acid bath" idea of skepticism when translated into living terminology becomes little short of mental vandalism. It is the impulse to throw a stone into the window of an old house to see if the window will break when the stone hits it, with no least idea of replacing the window if the stone does break it. The modern skeptic is not worried about the propriety of throwing stones so long as he is unmolested when he feels the impulse com-

ing on to throw stones. This terminates his imaginative thinking insofar as he does any relative to mental responsibility. Of course, the negation of responsibility in his own mind is buttressed by some form of doubt. If he does not *know* any better, and no one else has yet *proved* to him that something else might be better, how can he be blamed for throwing stones?

The skeptic's dream of irresponsibility is always bolstered by a doubt or an unbelief which he can conjure up in his own mind. His *belief* in unbelief becomes such a dominating norm within his imaginary thinking that it dominates whatever semblance of mental deductions he may exhibit to the world. He continually forgets to *prove* that doubt was ever constructive in producing anything. He forgets to plunge *doubt* into his own "acid bath."

Mentality engineering, with its insistence that perception is a manifestation of energy in one form or another, leaves the skeptic no choice but to prove the validity of his first assumption before proceeding further. Engineering has quite definitely established the scientific memory that something *cannot* be produced out of nothing; in short, perpetual motion is impossible. On this energy basis we hope we have fairly conclusively established the scientific memory that skepticism is only a *minus quantity*, therefore it cannot directly energize any mental procedure. The only leg left for *doubt* to stand on is that it is a *mental incentive*. On the basis of measures of value within mentality engineering this also appears to be only an *artificial* leg.

At that stage in evolution when conscious mentality was emerging out of instinct it might have been impossible to conceive a clear distinction between incentive and achievement. But, since the advent of successful engineering it is hard to believe that the cultivation of such



a blurred concept can be intelligently defended today.

Of course there may have been some engineers who introduced some valuable improvements into the field of engineering under the incentive of monetary or personal gain. But, every competent designing engineer and inventor knows that it was the natural imperatives which he incorporated into his designs that produced whatever results he achieved. Some of these designing engineers may have relaxed some of their mental integrity as they moved about in society. However, they knew that if their mental integrity was relaxed during their creative endeavors they would not arrive at a mental achievement which could later, next day or next year, be embodied in a mechanical achievement.

In the modern stage of mental development it is not possible to eliminate outside incentives from at least partially controlling mental procedure. We have already suggested the place of perspective responsibility within mentality engineering. That is, some perspective end toward which mentality is being directed is desirable. Otherwise the mind wanders off into the emptiness of space, dissociated from both time and substance.

Does the skeptic intend to insist that doubt is the perspective end toward which his mentality is being directed? I think not. Doubt is rather a subterfuge which he uses to keep his own mind confused and to confuse others so as to excuse himself from the task of presenting any organized procedures which might aid in the development of a perceptive capacity. Under these conditions it is impossible to write a history on skepticism, for skeptics at least, because they would not recognize any measure of validity within such a history. Time is completely outside of their mentality ken. Therefore, in dealing with a skeptic, or a skepticism, one must deal

with the present moment irrespective of what happened yesterday or what may happen tomorrow.

This complete elimination of all patterns of time from the mentality field of the skeptic has led the scientific skeptic to dilate volubly on the dominating role of the latest experiment. All else is as nothing when compared with his own imaginary interpretation of the latest experiment, or even his own latest experience. His imagination detached from the past and the future is free to imagine whatever conclusion his animal impulses may suggest to him.

Analyzed in this fashion it is clear that scientific skepticism, as previously suggested, is not a pure strain of skepticism. The scientific skeptic is not as skeptical of his own scientific memories as he is of the memories which may be experienced in other schools of learning. In other words, he believes more of the mental deductions within his own school of learning than he is willing to believe about the mental deductions in some other school of learning. Emboldened by this trend of thinking some of them, at least, are willing to state categorically that, "when we understand a mathematical law of nature, we understand as much of nature as can be understood at all."

In this statement the scientific imagination has synthesized what that imagination conceives to be a fact. The imagination here assumes the role of a mental dictator and is willing to circumscribe the field within which any future understanding of nature could be arrived at. The perspective end of doubting, therefore, appears to be a desire to eliminate a feeling of doubt. Thus the scientific doubter apparently has his moments of exaltation when he, too, can *feel* free from doubting. But, can doubting ever eliminate doubt? I doubt it.

In any case, mentality engineering will require a fuller explanation from the skeptic of how doubt can be transformed into a genuine incentive within a field of mental integrity. This, however, does not relieve us here of the responsibility of recording some further observations relative to trends within skeptical imaginings which the present writer has observed during his own lifetime. As repeatedly pointed out the vociferous propagandizing of skepticism during the early decades of the present century has appreciably subsided into a tone of complacent acceptance of skepticism as a normal complement within the modern mind. In other words, skepticism has subdued the human brain and is now enjoying the respite of a demonic exultation.

This is not the whole story, however, because even scientific skeptics realize that doubt no longer plays much of a role in scientific investigations. The repeated changes which they have been compelled to make in their scientific memories relative to what they have called scientific facts, have lessened their confidence in the imaginary interpretation of scientific facts. In other words, an *illusory* quality within "the scientific definite" is beginning to be apprehended in their own thinking.

In evolutionary perspective skepticism is becoming a vestigial remnant that is beginning to disappear. If I were a humorist it would probably be appropriate to say that the vestigial tail of skepticism is disappearing and that it is the itch resulting from this eliminating change that is causing many uncomfortable feelings which are being experienced within many minds today.

Mentality engineering is devoted to the task of retaining mental integrity within each mentality field within a continuum of time; it endeavors to create an enthusiasm and a loyalty to mental activities which will re-



quire no incentives other than those germane to its own healthy growth. In its slogan, "trial and selection," the idea of *selection* is the directive which replaces doubt in a skeptical approach to learning.

Selection is a constructive concept which can be appropriately applied at any stage of development whether physical or mental. It bespeaks mental activity within all mental deductions and conclusions of whatever nature. It is *not* an unofficial observer standing on the sidelines of mental activity to see if it can find something to criticize. Its measure of its own validity is achievement. The contrasted concept of achievement is futility which simply means a failure to achieve. Its measure of validity is mental accomplishment; not some imaginary comment about what one person imagines that another person is thinking about.

In the absence of any postulated end in view one can only turn to the statements of individual skeptics to get first-hand information as to what the trend in skeptical imaginings might be. We have already quoted several such statements within the pages of this thesis and have discussed their vacuous content relative to the principles of sound mentality engineering. If the reader is interested in observing the influence of skepticism as an *individual incentive*, I suggest that he should re-read those discussions in the light of this question: Do they not all indicate that the primary incentive in the mind of the skeptic is to entrench himself within the confines of his own beliefs, about the efficacy of unbelief, in such a manner as to excuse himself from any inquiry into the nature of his own doubts?

The whole problem of mental incentives, however, is not disposed of relative to the modern predicament by philosophically negating doubt as a positive mental fac-

tor. The problem of transforming millions of hesitant, doubting minds into virile, enthusiastic seekers after the truth is not so simple as that. Dogmatic prejudices in some scientific minds are being modified a little. But nothing short of attacking this problem at the level of the childhood mind can be very effective in producing a rejuvenated outlook.

### *Theological Aspects of Skepticism*

Skepticism, when acting in the guise of a theology, is such an irresponsible theology that it has no body of doctrine to which one can turn to discover its trend of thinking, at least theoretically this is true. Why then do I refer to skepticism as an irresponsible theology? Simply because it has assumed exactly that role in its dictatorial reign over the image-forming incentives within confused human brains. Within such brains a multiplicity of imaginary images is the only equipment which they have for envisaging the functions of cogent thinking. Is it any wonder that they are confused?

Without any formal theology and within the domain of a detached imagination, skepticism has contrived to become the most universally accepted and the most universally unquestioned dogma ever perpetrated on the gullibility of so many millions of human beings. A detailed inadequacy may be more devastating as a mental norm than a more adequate norm which is not yet fully comprehended in all its details.

The mentality engineering concept of theology, as already defined, "is a mental norm or norms expressed in concepts which have some validity and sufficient appeal to serve as a dominating guide in the lives of many individuals. Theology recognizes its inability to explain

everything and contents itself with explaining enough to hold the allegiance of many minds."

On this basis skepticism certainly qualifies as a form of theology today; not a most exalted theology to be sure; but it has the semblance of a theology. The manner of establishing itself as a theology was through arguing in the terms of a categorical *must*. To be sure, the skeptics in the early days of this present century did not classify themselves as theologians, but they could argue; and they used the technique of impressing on immature minds the idea that they did not believe in theology at all, but they were presenting facts to show that doubts were necessary in any mental procedure leading in the direction of "the Truth." Under this guise they discredited religious theologies in their own minds and in the minds of converts to skepticism. The early scientific skeptics were humble enough to admit that they did not know everything but they made no secret of the fact that they *believed* that they were following the *only trail* that led toward the learning of anything.

It would be futile here to try to present anything like a full catalog of the imaginative conceptualizations which were used to displace legitimate theologies and to substitute in their place a subterfuge program which even yet does not conceive of itself as being a theology. This subterfuge theology has usurped the position of a more formal theology, and has assumed the role of "a mental norm" which is serving as a dominating influence in the mental attitude of multitudes of men, women and children today. This spurious theology should be replaced by a more coherent theology which has vital content relative to a cogent and creative mental procedure.



## *Impressions on a Film of the Eternal*

In any attempt to evaluate a continuum of time relative to living phenomena, in a thesis of this type, one is handicapped by the complete absence of any such conceptualization within the field of science. In its organized publications science has completely ignored the significance of time within any perceptual approach to mentality. Science has even left the word "wisdom" out of its prosaic deductions relative to mentality.

As previously pointed out some concept of the significance of the continuum of time is a fundamental requirement in even a postulated concept of what wisdom may be. If one wishes to get any concept of what the thinking of man has deduced relative to the time content in wisdom one is compelled to turn to religious writings. Inasmuch as the theme of this thesis is "Thinking about Thinking," we have endeavored to steer clear of any discussion of the full impact of spiritual contemplations.

In introducing the phrase, "Impressions on a Film of the Eternal," I wish the reader to understand that this is not a postulate within the usual conceptualization of mentality engineering; it is rather an abstract or imaginary concept borrowed from the physical world, in order to convey to mentalities which know no other world than that, something of the significance of a continuum of time. It is not very instructive to state that the film in a moving picture camera has impressions of *space* on it; such a film gives us impressions of particular mass-energy relationships which occur within a limited location in space.

Likewise, the phrase impressions on a film of time would be equally diffusive and perplexing. One cannot conceive of time as being a film, but the idea which I am

trying to suggest with the phrase *impressions on a film of the eternal* implies some recording phenomena, *which recording is carried forward within the eternal as a pattern that affects what is happening at any moment within any living phenomena.*

Wisdom is not a working bee in a hive of skeptics. Wisdom is not an active participant in the imaginary thinking of a skeptic because *long range transportation of ideas is not possible within a society of doubters.* The imaginary confidence placed in the latest experiment, or the latest experience implies the possibility of cutting a *film of the eternal* and interposing a skeptical piece, just as one might cut a piece out of the film for a moving picture and substitute in its place an un-authentic connecting event which was not in the original film.

Mentality, however, cannot be tampered with in this manner if the general theory of evolution has any great measure of validity in it. If it took eons of time to arrive at conscious perception is it not a mentally sound deduction to assume that a continuum of time, within its own essence, is a factor which contributed to the development of a capacity for perception? Even the physical world recognizes that nothing is exempt from the "ravages of time" except the *things which are growing.* Everything that grows appears to controvert this law of ravages. Life is the achievement of victory over death.

Mentality engineering assumes that a victory of achievement within a field of mentality is the only assurance that the ravages of time are not claiming their toll in mental disintegration also. When vital concepts are not being integrated within a field of mentality that field is being abandoned to the ravages of time.

It is difficult to *imagine* how impressions on a film of the eternal could have engineered the appearance of

life which is capable of producing creativity, instead of decay, within a lapse of time. It requires something more eternal than imagination to even postulate the influence of time on creativity. The very achievement of perception within our mentality fields, which attests something of the validity that is within this last statement, gives a measure of validity to the postulate that perception itself is rooted in the eternal in a manner in which the imagination as yet cannot even outline.

It is impossible to suggest in a few words the vitality of those characteristics which have been carried within the eternal through the eons of evolution. It appears to be quite clear, however, that a neglect to attempt any evaluation of the *influence* of time on psychic phenomena is dementing the various interpretations of evolution within the modern mind. In engineering terminology modern mentality has disconnected the shunt-winding around the poles in its perceptive generators so that the armatures can be made to spin without producing any increase in perceptive voltage.

Scientists already know what mental integrity means within their investigations in the laboratory. There they are searching for validity within variety. Why is it when they leave the laboratory that they appear to be satisfied to search for variety without reference to validity? When they begin to search for validities within the varieties of mental activities they will probably discover that the eternal aspect of *time* cannot be left out of any comprehensive deductions relative to wisdom.

Wisdom bears the stamp of an *eternal* moving with time which adds an increment to knowledge that cannot be ignored in any trustworthy evaluation of thinking. What can we add to the prophetic admonition, "with all thy getting get wisdom"? We might add, in all thy




thinking think wisely. And we *can add* some instruction in our educational systems that might lead growing boys and girls to do some *thinking about thinking* which *will reveal to themselves* something about the procedures within wisdom, and something about the very content of the concept which we designate as wisdom.







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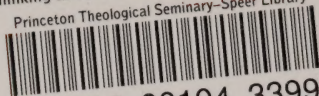
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